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THE TRANSDATA IMPACT
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Hewitt of the National Council for Civil Liberties . . . criticised by BCS members.

Privacy Bill will be challenged

by Kevin Cahill

THE government will next week announce its long-awaited data protection legislation, in time for the end-of-year deadline laid down by the European Convention which was signed by Home Secretary William Whitelaw in 1981.

And hot on its heels will be a Private Member's Bill, drawn up by the National Council for Civil Liberties, and sponsored by one of a number of Labour MPs.

Who will actually sponsor the Bill will be determined only when the balloting for Parliamentary time for Private Members' Bills is completed after the Queen's speech next week.

Speaking at a London branch meeting of the British Computer Society, Patricia Hewitt of the NCCL said that the government's Data Protection Bill will not deal with most of the problems of information privacy.

The NCCL would be introducing its proposals to ensure that there is a complete set of amendments, Hewitt said.

Her main target for attack in the government Bill is the fact that only data which is automatically processed is covered. According to Hewitt, 80% of the complaints she currently deals with relate to data which is manually held.

Hewitt ran into strong criticism from two members of the BCS, including council member and former BCS president Gerry Fisher. He said that Hewitt and the NCCL had got it wrong, and as a result was liable to have the existing Bill wrecked.

Fisher suggested that the NCCL would be better off co-operating with the BCS to get the existing Bill through and then producing amendments later.

"Who on earth have you asked from the BCS to advise you?" Fisher asked. Hewitt could not remember any names, but was rescued by a BCS member who said he was a council member of NCCL.

There was general agreement at the meeting that the problem of privacy could not be solved by the addition of further bureaucracy.

Author and BCS fellow Donald Alcock suggested that Hewitt would be better off taking arms against a sea of civil servants, instead of increasing their numbers.

But Hewitt said: "We don't want a law that leaves us as impotent to deal with complaints later as we are now."

Hewitt objected to the way those in power collected information which may be unlawful, inaccurate and out of date. "That information may be used in decisions which affect our lives, without us knowing anything about it."

Speaking about the government's proposed registrar of databanks, Hewitt insisted that the current proposals, which do not include any provision for a legally responsible individual within companies and organisations, were inadequate.

"The NCCL wants the registrar's department to have an appeals tribunal attached and wants individuals to have a statutory right of access," she said.

Hewitt was particularly concerned about the government's attempts to introduce a range of exempt databases within police intelligence and other Departments of State.

She said that not only was the NCCL opposed to the unregistered databases, but to the idea that transfers of data between registered and unregistered databases should also be exempt.

LINE NOISE

FOR those who have forgotten ICL's chairman Sir Christopher Laidlaw is on a two-year contract which runs out next May.

So far, there are no signs that Sir Christopher intends to refuse a second term if offered, but rumours are circulating that the hard-nosed knight is finding the 100-hour week worked by his Managing Director Robb Wilmot, in part contagious and in part very trying.

As one broker put it when he saw Sir Christopher with a bunch of Japanese gentlemen outside the DoI one morning at 8.30: "That, I'll swear, is the first time Sir Christopher has seen the sunny side of 8.30 for years"

Not necessarily true, but with most of the board working from eight in the morning to nine at night, so has Sir Christopher. And at 60, the City seems to believe he is thinking that there are other things to do with your life besides bring on a heart attack in the cause of ICL.

ONE of the last links with the world's first commercial computer is due to go next April, probably on the first – the normal way of doing these things. Sperry Univac is to drop one of the double-barrelled leagns and become Sperry Computer Systems. The company's reasoning is that Univac is too redolent of the days of the big mainframes and Sperry wants to make it clear that it is involved in software, services and distributed computing activities.

IBM's big blue chief executive John Opel has been seen in Europe recently hobnobbing with various European leaders, including our own dear Margaret Thatcher. Ostensibly his visit was to talk about "business matters relating to the individual countries", but IBM is noticeably worried about the EEC anti-trust case, in Brussels. It couldn't be that it

Burroughs drops legal action against ICL Health Authority deal

by Kevan Pearson

BURROUGHS has pulled out of its legal attempt to force Oxfordshire Regional Health Authority not to give a £500,000 contract to ICL.

The company had sought an injunction to stop the contract going ahead, and had asked for damages. However, all actions have been dropped following high-level talks between Burroughs chairman Michael Blumenthal, his UK managing director Bob King, IT Minister Ken Baker, and Sir Peter Carey, Permanent Secretary at the Department of Industry.

A Burroughs spokesman said assurances had been given that future public sector contracts would be awarded according to the rules of the EEC and GATT – General Agreement on Trade and Tariffs on open tenders.

What is not sure at the moment is the status of Burroughs' appeal to the EEC about the decision. Brussels action is notoriously difficult to stop, once set in motion, and the company was optimistic that its appeal would be treated favourably.

King said: "We are not pursuing anything through the European courts. We have been involved with the European Commission, and it is up to the Commissioo what they do. But we are taking no actioo on the European front."

The company started its action this summer after it had come out top in a technical evaluation by the authority, according to the instruction to tender, but was not awarded the contract.

The contract went instead to ICL, and Burroughs attempted to get the contract nullified. However, it failed in its attempt to get an injunction, and in its appeal against this decision. It was determined to pursue the case further, and to claim demages.

A spokesman said the actions had been dropped "in the best interests of all concerned", and that Burroughs was satisfied that it would get fair treatment in future contracts.

MDS reshuffles sales

by Kevan Pearson

THE new top man at MDS Computer Systems has completely reorganised his sales and marketing forces, barely a month after taking charge.

Gerry Meredith-Smith, an ex-ICL corporate planner, intends to appoint new sales and marketing directors to head the revamped divisions. Meredith-Smith says he expects to announce the new appointments in December.

The new sales force will be split between a regional organisation, based in Leeds/Manchester and London, and a "key accounts" sector, which will be based in Birmingham and will concentrate on MDS's main clients. The company will also have an industry specialist sales group, says Meredith-Smith, but this has yet to be launched.

The latest moves are part of a world wide organisation at MDS, or Mohawk Data Systems, as it is known in the US. Part of the reorganisation has been to curtail the activities of the European headquarters, based in Brussels, and to give individual local managements a direct reporting line to the corporate headquarters, in the US.

IBM PCs to be made in Scotland

by Kevan Pearson

IBM is to manufacture its Personal Computer at its Greenock factory near Glasgow, following the launch of the machine for the probably in January.

Greenock won the contract to manufacture the machine in the face of competition from its other major UK plant at Havant and from West Germany and the where its Displaywriter processor is made.

The first versions of the IBM go on sale in Europe are to be made at the Florida plant. The US versions are to. However, Greenock is expected come on stream to provide European shipments, some in the first quarter of 1983.

The Scottish plant is the choice from which to source PC. Its main business is the visual displays in the IBM 8770 product lines. It also other keyboards and visual products.

An IBM spokesman described it as the "volume production plant. And with sales of the US believed to be 200,000 units, accounting of the top of the market, production is what is needed.

IBM has recently acquired facilities at Greenock's 3 sqft for "manufacturing vision" but it would not say this was for production of

Demand for the launch has been growing several companies have been in act with unofficial imports the US. And the Sirius 1, the same Intel 8088 chip, the same operating system PC, has clocked up more sive sales if the impression believed.

IBM has not yet said sell the machine in Europe

Scicon to lay off 30

ONE of the UK's largest computer services companies is cutting its staff by about 30.

Scicon UK, 900 strong, is closing its Nottingham office, and cutting some jobs in London as a result, but a spokeswoman could not say how many people at each site would be affected.

"There are 17 people at the Nottingham office and they have been offered relocation to other sites, but we do not know how many have taken this option."

The Nottingham office was largely a consultancy branch office.

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Political cloud over Alvey

by Kevan Pearson

BROAD industry approval of the Alvey Committee's recommendations on the UK answer to Japan's fifth generation project looks certain despite reservations about the content of the committee's report. But a serious question mark hangs over its political future.

Computer manufacturers, software houses, academics and professional associations are giving the Alvey report a tacit thumbs-up in the face of what is universally seen as a major threat to the UK's competitiveness in information technology by America, Japan and some of our European neighbours.

The consensus view seems to be that Alvey is totally right about the danger posed by rival research and development projects, and the need for the UK to act quickly.

There is a broad level of concern about the detailed proposals, but these can be dealt with once the project is under way. Getting started, as soon as possible, is the priority.

There is a worry, however, that the government may not act, or may not move in time. Philip Hughes, chairman of Logica, and member of the committee, told a meeting of the Parliamentary Computer Committee, Pitcom, that there had been no response from the Department of Industry, which sponsored the Alvey Committee, from the Treasury or from Parliament, though Hughes said the Ministry of Defence was "extremely supportive", and had offered £60 million with a further £40 million from the Science and Engineering Research Council.

David Fairbairn, director of the National Computing Centre, thinks the government will back the report. "I think the government will put money behind it," he said, "but the sums proposed are causing government to gulp."

He was adamant about the need for such a project to protect the UK economy and to help ease unemployment. "By 1985 the IT balance of trade deficit will be £1,000 million and we need to do something to stem that tide which will generate employment and increased production."

Professor Frank Sumner, of the Computer Science Department of Manchester University, is equally adamant about the need for such a project. He described the report as "a bit too vague in some areas. We need some short-term goals, as well as long-term aims."

He particularly welcomed the suggestion to co-ordinate the research efforts of the universities, government and private industry. He is also keen on the call for more money to be spent on computer science education. "There are more jobs in computer science than there are computer science graduates in the UK," he said.

And private industry is wholly behind the call for more educational resources to be committed to computer science.

SUMNER . . . "We need short-term goals as well as long-term aims."

Push for extra £50 million spending on information technology over five years

Scientists fight back against govt shackles

by John Riley

SHACKLED by government spending restrictions, the Advisory Board for Research Councils is still pushing for an additional £50 million for information technology over five years. But if Education and Science Secretary Sir Keith Joseph approves the plans, the money may come at the expense of other projects funded by the science budget.

The report from Joseph's top science advisers, published last week, bemoans the fact "that resources in real terms available through the science budget have been decreasing, at a time when new areas of fundamental science have been opening up".

"Severe cutbacks in the universities where so much of our science, basic and applied, is sustained, are now endangering the country's position in science and its capacity for recovery, and so eventually its competitive economic position in the world", the report goes on.

The new programmes for information technology research would be administered by the Science and Engineering Research Council. While no mention is made of the Alvey report, the research would be part of a "national programme".

Priorities are likely to include areas singled out in the Alvey Report, such as VLSI, ergonomics, software engineering and artificial intelligence and knowledge based systems, said Dr David Wornsip, principal of the SERC Information Engineering Technology Committee.

"We are planning which areas should be supported on an increased basis and which from scratch," he said, "and are doing a forward look, particularly with regard to providing support for universities and polytechnics to build up expertise in IT areas".

Joseph will make a final decision on the recommendations late this month or early December after the public expenditure survey is completed.

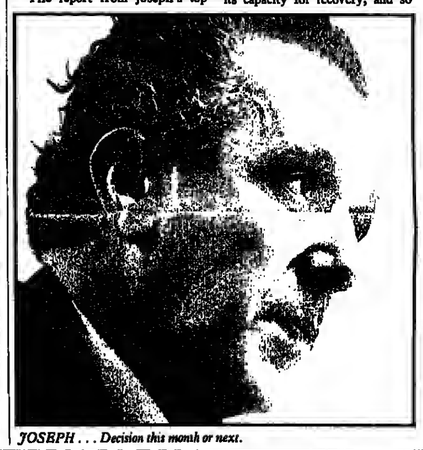
The Advisory Board proposes additional money for the SERC budget of £5 million in 1983-84; £7.5 million for 1984-5; and £10 million for 1985-6. It would have to find £2.5 million in 1984-5 and £5 million in 1985-6 out of its existing allocation. That totals £30 million, with another £20 million to be found for the remaining two years of the five-year programme.

Information technology is one of five areas given high priority for funding in this "time of new scientific opportunities of great promise and potential which need to be supported now if our country is to prosper in the future". The other areas are neurosciences, marine resource study, biological advancements and remote sensing.

Information technology's gain is likely to be at the expense of agricultural and national environmental research. "It is our judgment that, in order to permit SERC to undertake new work which we regard as the highest importance, we must regrettably reduce the amount of research undertaken by the ARC and the NERC".

Wornsip thought it likely that two-thirds of the funds allocated for information technology would go to research and about one-third to education and training, covering studentships, fellowships and new postgraduate MSc courses. He stressed that once priorities have been decided, the SERC will actively co-ordinate and communicate these to academics, and will strive to direct their interest towards these areas.

The ABRC report also shows considerable concern about the decline in new blood recruitment in a contracting university system. It estimates that by 1987-8 there will be a deficit of 1,100 staff under the age of 35 in university science-based subjects (including 170 in mathematics/computer science). The proposed remedy for this is a "new blood fellowship scheme" which would create about 1,020 fellowships for science between 1983-6 at a cost of £20.5 million.



JOSEPH . . . Decision this month or next.

Amdahl steps into storage market

by Kevan Pearson

AMDAHL, one of the largest suppliers of IBM compatible computers, has taken its first major step into the storage market with an IBM compatible disc system.

Amdahl's 6000 series products offer half the capacity of IBM's 3380 system per box, though Amdahl claims an improved performance over the larger system in some applications.

The 6000 series comprises the 6480 controller and the 6280 disc units, with an overall capacity of 2.27 gigabytes per box, compared with IBM's 2.5 gigabytes for each 3380 box. Amdahl's system is made by Fujitsu, which supplies sub-assemblies for Amdahl's high end processors, and uses 10.5-inch platters, instead of the more usual 14-inch devices employed by other manufacturers.

The devices use 3350 type formats, so there is no need for complex reformatting when changing for 3350 products. And the 6480 controller features data streaming, two disc storage directors, and dynamic pathing providing two paths to each disc unit as standard.

The company has not announced a UK price, but in the US, where the system is already available, a typical configuration of one control unit with four disc units would cost just under $300,000.

The company made its first installation at the National Planters Bank in Memphis, which will use the disc with an Amdahl 470/V8 processor.

The 6000 system will be available in the UK in the first quarter of 1983.

The product has come just in time for Amdahl, which last month reported a 92% drop in third quarter profits compared with a year ago. The company made $630,000 on sales of $100.2 million. This brought the profit for the year to date to $4.1 million, on $316.7 million sales.

In August the company began to ship its new large system, the 58/60, after a delay of over six months. The delay, and the technical problems which caused it, are blamed for the downturn in Amdahl's results.

L raises cash for
n into US 3

Pinstripe packages for
the City 19

Personal shake-out on
the way 4

Software File 6
Micro News 11
Company News 12
Workplace 13
Puzzler 13
Platforms, Profile 14
Downtime, Liveware 14
Leaders, Letters 15
People/Diary 16
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Ferranti bids for Far East market

by Robert Parry

FERRANTI is to take on the micro makers of the Far East on their home ground.

The UK pioneer in semi-custom chips this week launched a joint venture with Hong Kong's Wheelock Marden electronics group subsidiary, Semiconductor Devices. It is the first time that a foreign company has been set up in the Colony to design, assemble and test this type of microprocessor.

The joint venture, to be called Ferranti Wheelock Microelectronics, is aiming at a market for gate arrays in the Far East which is currently about $50 million a year. Ferranti expects this to jump to half a billion dollars by 1986 and aims to take one-third of it by then.

Ferranti's brand of gate arrays, uncommitted logic arrays, or ULAs, cover a range of complexity and size. To take advantage of the circuits, computer-aided design techniques are needed to lay out the final arrangement of logic cells and interconnections. Ferranti's CAD system, ULA Designer, forms the heart of the Hong Kong set-up.

Designs will be carried out by Ferranti Wheelock engineers, after customers have defined the specification of the custom circuits. Final details are sent to Ferranti in Manchester over a modem link, where the design is checked, simulated, and automatically laid out. Prototype wafers are then produced in Manchester and shipped to Hong Kong for assembly and test.

Semiconductor Devices has assembly and test operations in Manila and in mainland China as well as the Aberdeen plant in Hong Kong. Production volumes of circuits will also be assembled and tested locally.

Control of the design and production programme remains in Hong Kong throughout. This gives lower development times and ensures design security, says Ferranti. Customers have no language or travel problems, and invoicing is in local currencies.

Ferranti already has six similar design centres in Europe and the US. It has subsidiary companies in Germany and America, including Ferranti Electric in New York and Interdesign in California.

PASCOE . . . "We will still be in office market in 10 years."

Debut for Sperrylink

by John Riley

SPERRY Univac this week took the wraps off its strategy and products for office systems, Sperrylink.

John Pascoe, Sperry's UK director, said with a great deal of confidence: "We will still be in the office systems market in 10 years." He emphasised the speed with which the company was announcing new products and added "There will be more before the end of the year."

But Sperry will only be selling its office system product to its own 1100 Series customers to begin with. Sperry UK general manager Bill Read said "It is a top down system. We start from the database, which comes down to the desktop, whereas rival systems start with their products and add them on to the office."

Sperrylink is available in three models – standalone, departmental and interdepartmental. The standalone system is a 128K micro with word processing, terminal and personal computing, using the operating system CP/M, capacity.

Up to 15 desk stations can be linked through a Distributed Office Processing Station (DOPS/10) to add electronic mail, file sharing, archiving, and administrative systems.

For more than 15 workstations, what the company refers to as "interdepartmental" Sperrylink requires an 1100 machine to drive it.

System costs run at £9,500-£10,000 per desk station, dropping to £5,000 depending on the size and number of the installation.

Microvitec wins 2nd award

By Robert Parry

THIS year has become a double award celebration for Bradford video display maker Microvitec. Following on from its regional award in the Bowmaker Industrial Achievement scheme, it has now gleaned a £25,000 fourth prize in the Hill Samuel Anniversary Awards aimed at small private companies in the manufacturing sector.

"Winning awards like this is good for a young company like us," says managing director Anthony Martinez. "It gives credibility, and we need people to recognise us."

The Hill Samuel scheme was to mark the firm's 150th anniversary and gave away £150,000 – £50,000 to first prize winner Domino Printing Science, the rest divided among four other companies: Tudorcape, NFI Electronics, Microvitec and Molypress.

These were chosen out of 25 entrants by a judging panel, led by Sir Michael Edwardes, which looked for growth potential, innovation and management skill. Competing companies had to be British, independently owned, and the manufacturing sector, with a turnover below £2 million.

Irish microcomputers go on show

by Kevin Cahill

THE Irish have jumped on the national microcomputer bandwagon. Two new Irish-built, Irish-designed microcomputer systems were the high point of Ireland's biennial Ibetha Bue business equipment show last week.

The first of the new micros to be announced came from Memory Computers Ireland, which is shortly to seek a placing on the London Stock Exchange if conversations with stockbrokers Simon and Coates are successful.

The micro, called the System 7500, is a multi-tasking, multi-processor 16-bit system expandable up to eight workstations.

The machine has an entry level price of £13,000. Alongside the computer, the company has also introduced a generalised software package called System 505 which includes communications, telex and general business processing capabilities.

According to a company spokesman, a number of orders were taken at the exhibition.

The second home-built and designed machine to go on show was the Transtec BC2, an eight-bit micro.

The machine comes with twin 5¼-inch floppy discs and will be available shortly in the UK costing £2,400 including a printer.

The show, run in conjunction with the Irish Computer Society, was opened by Irish Industry Minister Albert Reynolds who told attendees that over one sixth of all Irish exports were now in the form of computers and electronic kit.

The larger computer manufacturers already established in Ireland were out in force, and Nixdorf's local sales director Raymond Naughton said that Ibetha was one of the best ways his company had found of meeting otherwise inaccessible people such as senior civil servants.

Nixdorf has two major subsidiaries in Ireland, with an estimated 25% share of the local computer market, as well as being one of the country's biggest computer exporters.

Both IBM and ICL were present, although neither company manufactures in Ireland. A spokesman at the IBM stand admitted that the local manufacturers like DEC, Wang and Prime were making increasing inroads on the local marketplace from their factory bases in the Republic.

SDL raises City cash for US push

by George Black

SYSTEMS house Systems Designers is to make a £1½ million push into the US, fuelled by cash raised last Tuesday on the Stock Exchange.

The Hampshire-bssed company put up 24% of its shares on a full listing on the Stock Exchange made up of £1.1 million of shares from existing shareholders and a further £400,000 worth of new shares.

The issue is being managed by merchant bank Samuel Montagu and stockbrokers James Capel.

SDL was founded in 1969 by now chairman and managing director Philip Swinstead and traditionally specialised in defence work.

SDL plans to expand its involvement with viewdata both in the US and in Europe. Defence contracts have now fallen to about 40% of its business, as industrial and information work has become a more significant part of operations.

The industrial sector accounted for 20% of turnover last year, information work for 10% and software products, such as the Coral 66 compiler and the Context package, for 15%.

After trading for 13 years, the company had a profit last year of £827,000. It employs some 280 computing experts.

Once almost entirely committed to supplying the Ministry of Defence and collaborating with Plessey on projects such as the Ptarmigan, SDL has diversified into assisting the West German PTT with its viewdata system and to acting as consultants for Tandem NonStop systems in banking and commerce.

The firm's commitment to Tandem NonStop services is the result of spreading use by the commercial world of systems which do not risk loss of data in the event of a computer failure. Such interruptions can prove extremely damaging and more and more organisations seek to guard against them by arranging to duplicate essential processes as an automatic back-up.

System Designers is not losing interest in defence schemes: 36-year-old Derek Lsrman was recently appointed as defence business development manager in response to an increasing scope for backing main contractors such as Marconi and Ferranti.

Systems Designers Limited is one of four trading subsidiaries of Systems Designers International.

In April 1981 SDL set up a new speech technology centre. It has also been trying to break into the lucrative oil and gas industries computing area.

On the viewdata front it has supplied a 500-port system, the largest of its type in the UK, for Thomas Cook's Holidaymaker package. This allows up to 20,000 users.

SWINSTEAD . . . Raised cash on the Stock Exchange.

Fifty more IT centres to help young jobless

by George Black

YOUNG unemployed not living in big cities may have a lifeline thrown to them by IT Minister Kenneth Baker, who has announced public spending of £12 million on 50 new information technology centres.

Some of the new ITECS could be placed in smaller population centres or have branches, SUBITECS, in these areas, if the government follows up ideas now being discussed at the Industry Department.

More than 1,000 trainee posts will be created by the scheme in the next year, but sites for the centres have not yet been decided.

There are already 59 centres at which young people are learning operating, programming and electronics and a further 40 are in the pipeline. Local organisations, including banks, councils and private companies, are co-sponsoring the projects with the DoI.

ITECS have so far been concentrated in the worst affected unemployment areas.

Snag in ICL move to expert systems

by Philip Hunter

ICL's move into expert systems with the Perq microcomputer has hit a snag caused by development problems at its small US partner.

The Three Rivers Computer company in Pittsburgh, which gave ICL full European marketing rights for its Perq personal system, ran into trouble developing an upgraded version.

An increased memory model to handle the language Lisp, which is widely used for artificial intelligence applications in the US, was due for release at the Comdex Show in Las Vegas in November. It will not now be available until the second quarter of 1983, according to a Three Rivers spokesman.

ICL was planning to adopt this new model for artificial intelligence applications in the UK, but will now have to defer launch until the middle of next year.

The version of Perq already sold in the UK and Europe by ICL is aimed specifically at specialist applications such as engineering. It is expensive, about £20,000, but compact, offering the performance of a Digital Equipment Vax in the size of a personal computer.

This makes it ideal for running Lisp, which has put off some potential users because of its huge demands on memory.

Several companies already have machines dedicated to Lisp, but none is yet generally available in the UK.

Rank Xerox has built about 200 Lisp machines, but these have mostly been for use inside the company, and the remainder were sold in the US.

Lisp Machine of the US has so far sold 19 dedicated machines, and in co-operation with Western Digital, plans to launch a new computer running the language with the Unix operating system.

5m more to call Prestel

by Donald Kennett

ANOTHER five million Britain's telephones will be able to access Prestel by the middle of next year.

Prestel's network of multiple users is to be extended so that 19 million (92%) of the UK's 18 million telephone subscribers will be within local call range, instead of the 11 million (62%) who are currently within range.

Mini sales 'will overtake mainframes by 1986'

MINIS will overtake mainframes as the big sellers of the computer world by 1986.

The mainframes' share of the computer market will drop to 35% by 1986, predicts a report by business researchers Frost and Sullivan. In 1976 mainframes accounted for 80% of the total.

Networked mid-size and large minis were pushing out mainframes just as fast as micros were encroaching on their own territory, the researchers found.

The mini market would rise to $12½ billion a year by then, far short of some recent forecasts. The slowing-up was due to the recession, high interest rates and the advance of the micro at the bottom end.

The average price of a complete system, including peripherals, operating systems and software, would not fall below $95,000 in that time.

Micros with 32-bit architecture would soon be competing with traditional 8-bit and 16-bit systems, says the report.

The high-capacity micro was already beginning to have a significant effect on the mini market.

Systime to automate MPs' pay

SYSTIME this week landed the contract for looking after MPs' pay and pensions.

The Leeds-based computer maker won the £280,000 job of computerising the House of Commons fees office, which handles all aspects of finance and accounting for the Commons, including the pay and pensions of MPs and their staffs.

The Computer Sub-committee at the Commons decided in April 1981 that the NCR 299 machines used in the fees office should be replaced by an in-house minicomputer, the equipment and programs to be procured under a single contract.

The requirement was advertised as required by EEC/GATT regulations and following formal tendering by shortlisted companies the contract has been awarded to Systime.

The system will be based on a Systime 6700 processor with 512 Kbyte memory, two 64 Mbyte disc drives, two printers, magnetic tape unit and 14 terminals running under the RSTS/E operating system.

It will be installed progressively over the next two years.

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'575,000 network connections by 1987'

by Donald Kennett

MUCH talk but little action is the current verdict on installation of local area networks. Distributed networks of all kinds in Europe will still have a total of no more than 3,000 devices connected to them by the end of the year, according to market researchers IDC Europa.

Installation should soon start in earnest, however, taking the number of connections to nearly 30,000 by the end of 1984 and to more than 575,000 by the end of 1987. At the same time the price per connection will fall from the current level of $3,400 to $1,400 in 1984 and $380 in 1987.

These conclusions are part of a report to be published by IDC later this month. The report, Market Opportunities in System Networking – Western Europe 1981 to 1987, covers all distributed network architectures from local area networks to IBM's SNA and Digital Equipment's DECnet, but includes star networks based on a single mainframe or mini.

Chris Wicks, IDC's head of European research, said that the market would gain a major impetus from the recent agreement by 20 computer and communications companies to support the ECMA standard for local area networks, as well as from the 300 or so that had taken licences to Xerox's Ethernet with which the standard is comparible.

This meant that the CSMA/CD (carrier-sense multiple-access with collision detection) access method would win out in the end, although IBM was expected to be one of the dominant suppliers with a hierarchy of networks having different performances.

IDC identified three categories of supplier: manufacturers of complete systems incorporating terminals and processors, in which the network was simply the means of linking their own equipment; systems houses which bought network hardware to use as components of systems they would make up with equipment from many manufacturers; and those who would supply bare networks for users themselves to attach devices to. They would account for 200,000, 250,000 and 125,000 of the 1987 connections respectively.

Local area networks would seem to be an obvious pre-requisite for future automated offices and factories, but progress has been slow so far, perhaps because there are so many parts to be brought together, or maybe just because prices are too high.

"I don't think there will be too much growth this year," said Wicks. "But in 1983 it should take off now that many vendors have made their decisions on standards. IBM should be in a position to make its decisions and another indicator is that the office automation market is picking up."

Many suppliers were entering the market, he added, although mainframe and mini manufacturers were among the slowest to become involved. For that reason they were looking to Ethernet licensees to provide ready-made subsystems.

The UK would be the first European market to take off, partly because it was an established strategy of the US companies, which would dominate the market overall, to tackle the UK before the rest of Europe. The other countries would start catching up in 1984 and by 1987 West Germany would have overtaken the UK with more than 160,000 connections installed against the UK's 130,000.

Office automation would be heavily identified with the use of LANs, the researchers found. Of the companies planning to install LANs, 90% also planned to install word processors, 64% to install electronic mail, 56% to install electronic filing and 56% to install desk-top computers.

The 148-page report costs £[illegible] if ordered this month or £1,[illegible] after publication.

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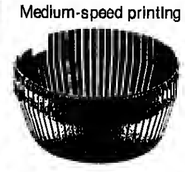

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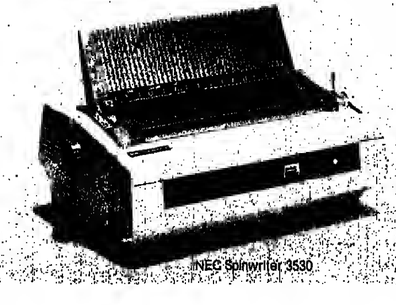

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US threat to quit French centre

by Jack Gee

LEADING US information technology figures who have joined France's State-sponsored World Development Centre for Microcomputers are threatening to withdraw their support following signs of increasing interference in the venture by the French government.

Jean-Jacques Servan-Schreiber, the writer and politician chosen by President Mitterrand as president of the Centre, has angered the American experts by proposing that the organisation should be attached to the French Telecommunications Authority.

French Telecom is a State-run offshoot of the Ministry of Posts Telecommunications and Broadcasting headed by Louis Mexandeau, who has recently conferred with Servan-Schreiber about the project.

Nicolas Negroponte, the centre's director and Professor Seymour Papert, its vice-president, both members of the faculty of Massachusetts Institute of Technology, have already complained to Servan-Schreiber about lack of consultation.

The Centre's managing board has met only once since it was set up a year ago.

The second meeting was cancelled at a few hours' notice while the American members were on their way across the Atlantic to attend.

The Americans are criticising what they claim to be dictatorial behaviour by Servan-Schreiber. They insist that the Centre should abide by its initial mission to develop a personal microcomputer for use in France, and industrial and developing countries throughout the world.

The Americans fear that the Centre's purpose is now being switched to technology rather than better relations between peoples.

Their apprehensions appeared to be confirmed over the past few months when Servan-Schreiber refused to recruit social scientists to the staff of the Centre.

Some American information specialists have recently refused invitations to join the Paris Centre and Negroponte has tendered his own resignation several times.

Servan-Schreiber was summoned to Washington earlier this year to attend a Senate investigation into a "brain drain" of American computer experts to Europe. Senators expressed concern that the Paris Centre might channel American know-how to Communist countries in Eastern Europe.

■ The French government early this week stepped in to keep the nationalised electronics firm Thomson in the semiconductor business. The French Ministry of Research and Industry instructed Thomson to cancel its plans to shut down the part of its Cameca subsidiary, a producer of the photo-lithographic equipment used in producing microprocessors. The Ministry now wishes Thomson to collaborate with the joint venture set up by French defence contractor Matra and US electronics company GCA to produce the same sort of kit.

SABAN . . . "Not necessarily the best products that will survive."

Personal shake-out coming—Motorola

by George Black

A SHAKE-OUT in personal computers is coming, predicts Dedy Saban, European marketing director, for semiconductor maker Motorola.

"And it will be those with the best service and distribution backup which survive – not necessarily the best products," he said.

Saban was giving Motorola's annual review of the market in London.

Praising the Olivetti machine, he said it had sold so fast that the makers were struggling to keep up with demand. "There is a boom ahead, but no room for all the types that exist at present."

The semiconductor business was facing a slowdown after a good first six months of the year, and there would not be any recovery until the second quarter of 1983.

Only West German and Scandinavia had had a disappointing year so far. West Germany had missed the boat with microprocessors but recovery in West Germany was the key to recovery in the rest of Europe because it was the biggest economy of the Continent.

The semiconductor battle of the 1980s would be fought out in Europe, because Europe supplied only 43% of its need. The US and Japan provided for 90% of their own needs.

Japanese penetration of foreign markets had been exaggerated, since they had only a 6% share of the US market and the same in Europe. But they had held on to their own.

Ten per cent growth in the semiconductor business was all that could be expected in Europe in 1983. "We may think of 10% as a disaster, but how many other industries would think of it like that? How many other industries would not be happy to settle for ten, five or even three per cent growth?"

The strongest markets for semiconductors had been in Britain, France and Italy, whereas German results had been poor.

Software family for complete DG range

SOFTWARE company Computerplan is following Data General up market with a family of software that will run on the whole range of Data General hardware, from micro to 32-bit minicomputer.

Formed six years ago with a "bedroom as an office and £100 of capital," the small £1 million a year company claims to be one of the largest suppliers of software to Data General OEMs worldwide.

Computerplan has been selling general accounting and vertical market packages based on CS Cobol and Business Basic for Data General machines. It has now converted that software into Advanced Operating System and AOS/VS packages for the 32-bit MV range.

As well as selling to OEMs – some 80 in the UK and Ireland including Software Sciences, Data Logic, Frazer Williams, CMG and SPL – Computerplan has installed 65 interactive turnkey systems to small first-time users.

Computerplan managing director George Brown makes a "conservative estimate" of 1,000 Installations of its accounting packages worldwide.

A major coup for the UK company was a contract to supply software for Data General's Enterprise microcomputer in North America, a deal which made Data General "our largest customer as well as our largest supplier," Brown said.

Riding in harness with Data General is a mixed blessing at the moment, with the US manufacturer going through difficult times financially. But after a difficult period up to the early summer, Brown says the introduction of the CS100 and CS200 products has improved the market substantially. He expects Data General to announce new products soon. If it does, it might help Data General regain some of the initiative it has lost in the small business market.

Computerplan's premier products are its general ledger, and an English language program generator called Dataplan.

BROWN . . . "DG our largest customer, largest supplier."

SALES BRIEF

Accounting package £1m deal

A £1 MILLION deal has been made between Transtec Computers of Bristol and Paxton Computers to run Paxton's accounting package Business Desk on Transtec microcomputers.

Business Desk offers accounting features for small businesses. Each transaction is entered only once to update all files.

Police net

CLEVELAND Police have bought a £100,000 data communications network from Microborer of Reading. The installation, including modems, multiplexers and a port selector, is based in Middlesbrough. The Microport selector links terminals at police stations to three Data General computers and through them to the national machine at Hendon.

College care

COLLEGES and hospitals in London will have their micros serviced by Micro Care, a member of the Miero Facilities group. The contract, valued at more than £25,000, involves maintenance of a range of micros under the authority of the University of London Purchasing Group.

Million mark

FREIGHT forwarding system, marketed by Management Control Systems of Ealing have just topped the million pound mark. The package was developed in conjunction with the Manchester freight handling company Fraser Hauser. MCS estimates that more than 250 terminals will be used in the UK by the end of 1982.

Water control

YORKSHIRE Water Authority's new treatment works will be controlled by a system supplied by Base Ten of Farnborough. The contract is worth over £200,000 and the system will be installed at the Elmbsay works, near Skipton, which are being built by Binnie Shellabear for the Water Authority.

Bank Maestro

MAESTRO, a new data processing support package from Philips Business Systems, has been ordered by Barclays Bank. It will go with a £79,000 order for the Philips P7000 minicomputer system.

Telecom sale put off until after October election

by Donald Kennett

INDUSTRY Secretary Patrick Jenkin is resisting pressure from Tory back-benchers to sell part of British Telecom before the next General Election.

Department of Industry officials said that next October was now the most likely date for the election, and immediately after that would be the earliest time by which preparations for the sale could be completed.

Civil servants have been working on the outlines of the proposed legislation in time for yesterday's Queen's Speech at the opening of Parliament, and the Bill is expected to be ready by Christmas.

It is then expected to take until the end of the next session in July to pass through both Houses.

Jenkin has circulated to all MPs a paper answering criticisms of the privatisation proposals. He argues that selling shares is a better way to raise capital than borrowing. The dividend can be cut either if BT makes a loss or if the growth in its share values is enough to satisfy shareholders, whereas this cannot happen with the interest on a loan.

His paper goes on to say that the man and woman in the street can have a stake in owning an important national asset, while few people feel any sense of owning a State corporation.

Far from losing a national asset, the public will gain an asset that will be enhanced by becoming more efficient as a result of market pressure, it adds.

Market forces will also persuade BT to provide the best service it can to all its customers (not just businesses) so as to maximise the use of its most valuable asset, the network.

Making BT a public limited company will benefit its employees by allowing it to expand rapidly in response to a huge growth in the market facilitated by competition, the paper says. Privatising BT is a logical extension of the government's measures to increase competition, which have included allowing users to buy their own equipment from competing suppliers and permitting private firms to operate value-added network services, mobile telephone services and an alternative telecommunications network.

Jenkin claims that competition in telecommunications will widen consumer choice, improve quality and bring down prices. Essential services covering rural areas, emergency calls and public kiosks will be maintained as a requirement of BT's operating licence. And the Office of Telecommunications will have powers to protect consumers such as the Post Office Users' National Council never had.

Telecom's shift to private sector to wait until after election.

Christmas lay-off as US sales sag

by Kevan Pearson

RECESSION-HIT US computer companies are shutting down factories for extended periods this Christmas to cut down the stock of unsold equipment.

Among those closing plants for more than the holiday period are Control Data, Burroughs and Data General. Exxon, the oil giant, is to stop production of some of its office products.

These are joined by Modcomp of Florida, the process control computer manufacturer, and Tektronix, which makes terminals.

CDC has announced that it is to close 21 plants over the period for from three to five days affecting 9,000 workers, in addition to the normal holidays, to "reduce inventories". The plants affected will not be normal CDC factories, however. They are those of CDC's two joint ventures with other computer manufacturers, Magnetic Peripherals, MPI, and Computer Peripherals, CPI.

MPI is 70% owned by CDC with Honeywell taking 27%. The balance is owned by Honeywell's French affiliate CII-Honeywell Bull. CPI is owned 60% by CDC, with Britain's ICL and NCR taking equal shares in the balance.

CDC recently reported a 12% downturn in profits for the third quarter to $38.8 million, compared with the third quarter of last year.

Data General is also to close most of its manufacturing plants over the holiday period. It has not yet decided on the duration of the closures, and will make a decision after a look at its order books. The company had a similar close-down earlier this year.

And Data General suffered a further sharp fall in profits, this time by 95%, down to $580,000, compared with a year ago.

Burroughs, which recently reported quite good third quarter results, is to close its word processing facilities in New York for the period.

Modcomp has said it will close during the latter half of December, and Tektronix has recently laid off 68 workers.

The third quarter looks like being particularly bleak for the US computer industry, with only IBM, Burroughs and Honeywell showing improvements over last year. Weak periods in the third quarter of 1981 led to some New York brokers displaying a marked disappointment with IBM's results. The company just failed to break the $1 billion profit barrier with profits of $944 million. In the second quarter of 1982 it just topped the $1 billion mark for the first time.

Honeywell showed a dramatic turn-around after its first quarter results. Operating profits tumbled by about 50% on the previous year, to be rescued only by the sale of its share of the Geisco bureau to General Electric. In the third quarter net profit rose 35% to $43.8 million, on sales up 5%.

Personal computers for students

by Howard Karten

THE 1,000 students entering Clarkson College of Technology in New York next autumn will each be issued with Zenith Data Systems Z-100 personal computers.

The total package to be given to each student includes a 128K computer with 320 Kbyte floppy disc drive, VDU, two operating systems, modem, and several software packages. Each system is worth about $5,000.

Most of the total cost of $5 million will be subsidised out of restricted grants, so students will pay only $200 per semester, and a one-time maintenance fee of $200.

Students will own their computers at the end of four years and "can take them to their jobs if they wish," college officials say.

Clarkson is the largest engineering college in New York and the first college in the US to make personal computers available to every student. Many US colleges make available to all students free computer time, via on-campus terminals connected to a mainframe. Clarkson students will eventually be able to hook up with the college's IBM 4341.

The number of colleges with computer literacy as a degree requirement is climbing steadily.

Among the schools requiring computer literacy for graduation by all or most of their students are Harvard College in Cambridge, Mass., Stevens Institute of Technology in New Jersey, Carnegie Mellon University in Pittsburgh, and a few others.

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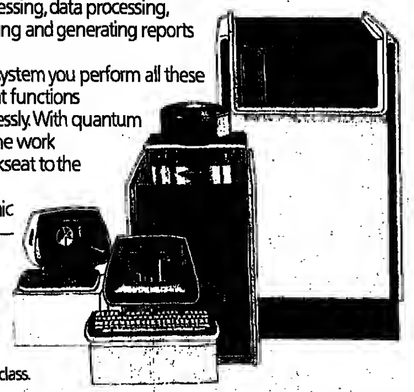

The Eclipse MV8000 is currently Data General's top-of-the-line 32-bit computer system. With support for 128 terminals, a MIPS rating of 1.1 and a double precision Whetstone rating of 995 it outperforms rival computers in its class.

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Motorola into car design

by George Black

TOP semiconductor maker Motorola is moving into car design.

Half a kilometre of wiring inside a car will be stripped out and replaced with 65 metres of wire and ten of fibre optic cable, in a revolutionary new design plioceered by the company.

The announcement was made by Ernie Pusey, the company's director of strategic marketing, at a Press conference in London.

The "Motorcar" will be unveiled at the Electronica exhibition in Munich. A Lancia Delta bas been used as a test bed for semiconductor applications in the automotive industry, and Motorola forecasts that its design will become standard over the next ten years.

It will not be going into the car market itself but plans to assist firms which want to develop the new systems.

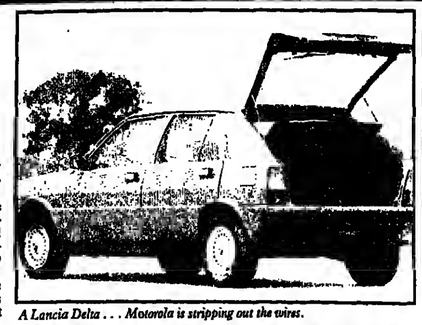
The programme, carried out in Milton Keynes and in Geneva, bas led to the iovention of a number of new single-wire products. There is a power switch which includes TMOS power devices with CMOS decoders on the same chip. And the ignitioo baa spawned a microprocesaor called the MC6805S2.

The new design will drastically reduce the weight of future cars and means that lights, door locks, window winders, mirror positions, aeat adjustments, windscreen wipers, stereo and clock can all be microprocessor controlled, as well as the engine.

In anticipation of marketing its products Motorola will go into mass production at its Bast Kilbride plant. HMOS and HCMOS wafer processing will begin there in late 1984.

The market for semiconductors in the automotive industry would triple in the next five years and would rise eventually to 10% of the total semiconductor market, Pusey said.

At present Europe lagged three or four years behind the US car industry in the use of electronics. This was mainly because the US government had legislated against exhaust fumes, which had not happened in Europe, except Switzerland.



A Lancia Delta . . . Motorola is stripping out the wires.

'DP managers jobs in jeopardy'

by George Black

INFORMATION and DP managers could lose their jobs when top brass find out that the micros they have bought won't do what they were meant to.

This warning comes from a new report on the progress of computerisation in big business, which paints a gloomy picture. The survey is the work of consultants Heldrick and Struggles, who sent a detailed questionnaire to the UK's top 600 private and public companies.

"A few information managers who have done a good job may find themselves on the board, but the rest may well be in jeopardy," said H&S' senior vice-president Paddy Sandford-Johnson, commenting on the analysis.

"The majority of these managers will be unable to do anything else, having spent on average 11 years with a single employer and all that time in computing services, not in geoeral management."

Micros were being brought in in a very unorganised way and people would discover that they needed more power than they had. They would have to wait until the price of that power fell – maybe in 1985 – to something they could afford.

The report predicts a boom in micro sales in the next two years, then tailing off.

Information technology was being introduced hardly at all in the manufacturing and engineering sector – and where it was coming in the move was completely unplanned and unco-ordinated.

"The attitude seems to be that we didn't invent it, so we don't want it."

In the distribution and services sector, information technology was arriving faster, but only in the biggest companies was it properly planned. Elsewhere it was haphazard and many companies had not bothered to avoid obvious pitfalls.

The resistance came from middle management and from shop stewards, not from top managers or from the workforce.

"Mainly it's the guy in his forties with 20 to 50 people working for him who bas spent 20 years learning his trade and who is clinging on to his empire and to the things he understands," said Sandford-Johnson.

The outcome was that the rate of change would be far slower than the heralds of the computer revolution were predicting.

The typical management service director in one of the big companies in 1982 would expect to earn about £22,000 and in some of the very top organisations that figure might be considerably higher.

The report says that two-thirds of organisations with a turnover more than £500 million had a plan for computerisation and conversion budgets were growing at about 12½% a year.

Plan to pump cable TV through the sewers

by Donald Kessett

THE Water Research Centre in Swindon wants to use the sewers to take the information technology revolution into Britain's homes.

It has responded to the challenge of the government's proposals for a national wideband cable network to carry many television channels and advanced interactive information services around the country by setting up a consortium called Cabletime with Micro Consultants, Link Electronics and Quantel, three image processing and television broadcasting equipment specialists owned by Kenley-based UEI.

The consortium plans to offer its design, based on conduit stuck to the roof of the sewer pipes, to cable system operators. It will install a trial system in Swindon next autumn.

The country's 10 water authorities are facing major maintenance and reconstruction expenses as Britain's mostly Victorian sewers collapse with increasing frequency and the Water Research Centre has set up a special laboratory on its Swindon site to develop efficient reconstruction methods. The chief executives of the water authorities are all aware of the tremendous opportunity to combine maintenance work with cable installation and are determined to take advantage of it.

The Water Research Centre has three sites and Swindon is the one where its cogineering, instrumentation and computing activities are based. UEI companies had supplied equipment to the centre previously and were keen to become involved with its developments for cable systems, which they see as probably being the only viable alternative to British Telecom's ducts.

They plan to develop specific electronic systems as soon as it is clear, as a result of government decisions, whether optical fibre or coaxial cable and switched or branching systems are appropriate.

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SOFTWARE FILE

Packages 'compatible with any mainframe

A TECHNIQUE to make financial packages compatible with any mainframe is claimed by the Manchester company Northern Software Consultants.

NSC's sales and purchase ledger software can now be run on IBM or ICL equipments and under various operating systems. And it is now working on converting the packages to other large machines. Discussions with DEC and Data General are in progress.

The work has been done in Norbol, an abbreviated form of Cobol which is expandable into full Cobol by a macro-processor. Coversion from one machine to another takes only six months, the company says, and costs a fraction of the amount needed to develop an in-house equivalent.

The NOR-SAL2 and NORPURLA2 packages run under IBM's OS/MVS or DOS/VSE with either CICS and DL1 or CICS and IMS/DB or IMS/DC and IMSBD. For ICL they are available under VME on the 2900s with TPMS real time monitor.

ESTERSON . . . "Bringing history to life for children."

How computers can help teacher

by George Black

HOW many times does the word "king" occur in Hamlet? Teachers who want to ask their pupils that kind of question — or those who need to answer if their pupils ask them — were able to pick up some useful tips at last week's first educational Software Fair at Hatfield.

One of three seminars which ran with the exhibition, organised by Chiltern Region Advisory Unit for Computer-Based Education, demonstrated information handling.

More than 1,000 teachers from all disciplines were there to get ideas on how computers could help them.

"They could find out how to use a computer to store the data from the 1851 census or to catalogue the periodic table," said the unit's Sue Jones. "We were not trying to tell them what they ought to do but to show them possibilities for any subject. The first act of Hamlet is one of the things we now have on file."

There were more than 30 exhibitors at the fair, who included publishing companies, local education authorities and small software houses.

"Apart from subject teaching, there are also many applications in administration, such as timetabling," said Jones. "The example we use is that if you wanted to know whether a bowls club could hold an event on a certain Tuesday afternoon in November then the computer would be able to tell you whether people were going to be free to be there."

Another seminar dealt with the difficulties of software distribution.

"Copying discs and sending them through the post is time-consuming and telesoftware is still expensive. The answer may well be Prestel or a mainframe link, but we really don't know yet."

Hatfield Polytechnic has a number of mainframes, which is dedicated to Hertfordshire schools for education authorities and the polytechnic's [illegible] systems.

Derek Esterson, [illegible] computing, said the fair was most comprehensive [illegible] kind so far.

"There is still too much [illegible] This show had less than others and there were [illegible] applications that could be right across the curric[illegible]

"For instance, children can find out who was living in street 100 years ago. It brought subject of history for them."

There was now a wide [illegible] useful aids available to pupils and mathematics teachers [illegible] aside, many of which were [illegible] display at the fair.

Spreading word on Unix

by John Kavanagh

THE Unix operating system has found the ideal people to spread the word about its features: the International Conference of Evangelists has ordered the first Unix System III application package from Root Computers.

System III is described as the first version of Unix to be aimed squarely at the commercial application market.

The package was commissioned by Microlease, which is supplying the software with a Digital Equipment PDP-11/23 minicomputer to handle registration and administration for the conference in Amsterdam later this year.

Pascal on the Vax

by George Black

A PASCAL compiler [illegible] the US for microprocessor [illegible] tion development is [illegible] in this country. The [illegible] Boston Systems Office [illegible] new software tool will be [illegible] buted in this country by [illegible] Sciences of Farnborough.

"It will use the Digital [illegible] host machine," explained [illegible] Orchard of Software Sc[illegible] PDP-11/RSX version w[illegible] For microprocessor de[illegible] BSO/Pascal enables [illegible] to be upgraded for [illegible] microprocessor.

It is available for [illegible] 8086/88 and for the [illegible] 6800.

Micromodeller user group

MICROMODELLER owners are to have their own user group — and it will be the first time such an association has been set up for users of a micro software package. The group is the creation of Philip Morris, the cigarette and soft drinks manufacturer, which is a major Micromodeller user, and the program developers Intelligence (UK).

"Philip Morris has used the package successfully for budgets, financial forecasts and for supporting our pricing decisions," said the company's financial controller, Philip Matthews. "The user group aims to invite ideas from users and gain from the [illegible]."

The inaugural meeting [illegible] representatives from [illegible] firms, including Shell, [illegible] Royce and NCR.

Intelligence (UK) [illegible] director Ashley Ward [illegible] been delighted by the [illegible] The association would [illegible] important channel for [illegible] more about the [illegible] program could perform.

There are 4,000 Micro[illegible] users in the world and [illegible] teetial members in the UK.

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LEAR SIEGLER REPAIR DEPOT

Rank Xerox have been advertising their Local Network a lot lately.

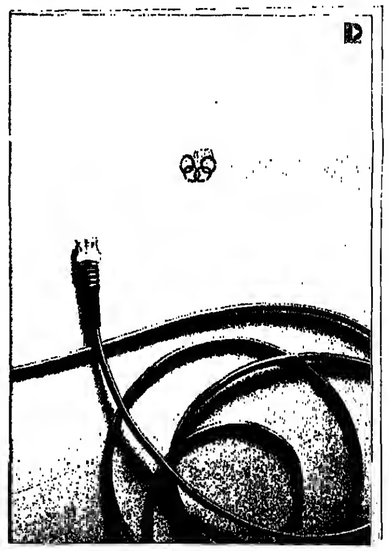
Perhaps they read this booklet, first published by Datapoint 5 years ago.

Rank Xerox aren't alone in suddenly discovering the importance of the Local Network. A lot of other companies are scrambling hastily onto the bandwagon.

Datapoint welcomes the competition. It'll be good for business. Even though it's been a long time coming.

It was over 5 years ago that we launched the Datapoint Attached Resource Computer (ARCNET for short – and our own name for the Local Area Network). Since then we have been installing, supporting and enhancing ARCNET by adding more capabilities, making better use of resources and opening the network to other systems.

Today, while most of the information processing industry is marketing first generation networks and promising second generation capabilities, Datapoint has moved into the third and fourth generations, incorporating integrated voice and data communications.



In fact, Datapoint is so far ahead of the competition that estimates put our share of the British market for Local Networks at between 70 and 80 per cent.

In round numbers, we now have 150 Local Networks, operating in the UK. That's more than all other Local Area Networks put together!

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MICRO NEWS

'Eight- vs 16-bit battle is a fiasco'

by John Kavanagh

THE battle between eight-bit and 16-bit microcomputer suppliers over the best word length is a "fiasco" because there is very little difference in performance.

So says John Burnett, managing director of the eight-bit microcomputer specialist Southwest Technical Products. He hit out last week at advertisements for 16-bit machines, which present impressive hardware specifications.

"In 99.9% of cases there is absolutely no difference for the user," he said.

But Keen Computers' managing director Dr Tim Keen, who sells both eight-bit and 16-bit machines, said Burnett was being selective in his equipment comparisons. The latest 16-bit processor chips such as the Motorola 68000 and Zilog Z8000 offered performances approaching those of large 32-bit "superminis", he said.

Burnett argued that many 16-bit machines used inefficient operating systems written in high-level languages. Unix, tipped as a future standard 16-bit operating system, was written in the high-level C language.

Southwest Technical Products' version of Unix, written in assembly language, meant the eight-bit micros ran more efficiently.

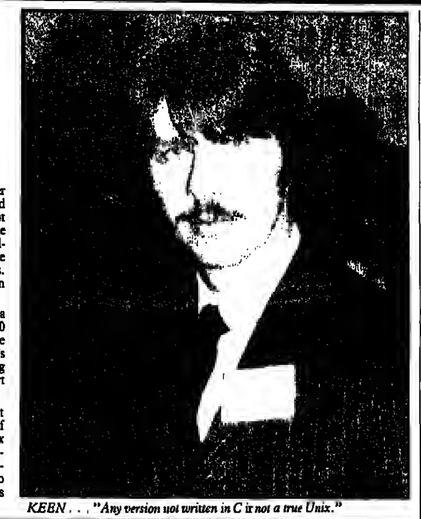
Burnett added that peripherals worked no more quickly with 16-bit processors because there were few 16-bit support chips. This meant those processors used eight-bit support chips, just as the eight-bit processors did.

At the same time, modern eight-bit processors such as the Motorola 6809 had 16-bit internal registers, so the eight-bit chip processed data in the same way as its big brother.

But Keen challenged whether Southwest Technical Products had a true Unix. "Any version not written in C is not a true Unix," he said. "It is possible that a scaled-down version in assembly language could run faster in certain cases. But I doubt whether it would run faster on a 12.5-megahertz 68000.

"The support chip argument is true to an extent. Even the 68000 is short of support chips. But the Z8000 has a good range – that's why many companies developing 68000 processors take support chips from the Z8000 range."

Burnett and Keen agreed that there was now a good number of applications packages for Unix systems. These ranged from general packages such as word processing, database and modelling to systems for businesses as specialised as dairies.



KEEN . . . "Any version not written in C is not a true Unix."

Scorpion's 1st choice is APL

THE Scorpion micro, launched by the London company MicroAPL, has APL as its first-choice language, the manufacturer announced this week.

Robert Bittlestone claimed: "Using APL you can have a system up and running before a Cobol analyst has finished writing the notes on the first meeting with the user."

Based on the Motorola 68000 *16-bit chip*, the Srorpion will be featured at the Compec exhibition.

PITTMAN . . . CP/M can go on Z8000 specially designed micros.

Z8000s to get CP/M

by George Black

THE CP/M operating system is to be linked to Zilog's Z8000 16-bit microprocessors, previously associated with Unix, after an agreement between the semiconductor manufacturers, an Exxon subsidiary, and Digital Research of California, the owner of CP/M.

"The biggest market will be for enhancing our components activity," said Zilog UK's managing director Phil Pittman. "People will be able to incorporate CP/M on Z8000 systems of their own design."

Zilog will continue to offer Unix as well as CP/M. Most of the same languages as are supported by Unix will be available with CP/M by the spring of oext year. These include Basic, Pascal, Cobol, Fortran, C and APL.

Digital Research is to market and support the Z8000 version of CP/M and Zilog will get a licence to use CP/M in board and system level products.

Implementation will be on the Z8001 and Z8002 CPUs as well as on the virtual memory processors Z8003 and Z8004, which were introduced in August.

Unix System III for Onyx

ONYX 16-bit micros, distributed in the UK by Thame Systems of Oxfordshire, can now be run under the Unix System 3 operating system.

Thame, a subsidiary of Memory and Electronic Components, will continue to offer IS/1, the Interactive Systems version of Bell Labs Unix, Version 7, as an alternative for the Onyx C8002.

Thame has also added the Rair Black Box 3/50 to its micro range.

Motorola's foot in UK graphics door

US semiconducror component and systems supplier Motorola is to gain a strong foothold in the UK graphics market.

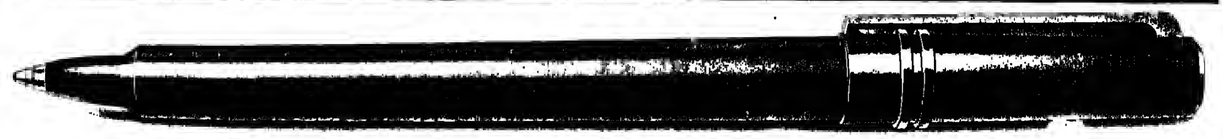
The display specialist Terminal Display Systems of Blackburn is to be a Motorola franchised systems distributor from the beginning of next month, concentrating mainly on selling the 68000 board level products from Motorola in conjunction with its own graphics boards.

For TDS the appointment marks an extension to its main business as a supplier of display systems, seeing Motorola 68000 systems with colour graphics capabilities plugging a gap in its range. For Motorola it represents a strengthening of its systems distributor network through the addition of a company with specialist knowledge of the burgeoning graphics market.

To capitalise on the Motorola franchise, which TDS managing director Bob Astley sees as bringing in the ideal vehicle to satisfy the demand for more intelligent graphics workstations through the 68000 16/32-bit processor, TDS is also launching a colour graphics board designed for integration into a Motorola 68000 Versabus system.

The Versagraphic module was developed in co-operation with TDS's US associate Graphic Strategies. It is based on the NEC 7220 graphic display controller chip and gives 512 by 512 resolution in 16 colours, with 2D transformotions and hardware zoom, and scroll.

Micro News is compiled by Robert Parry.



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Do you use Digital's Accessories and Supplies Group? YES/NO
Is your Digital hardware on one of our Field Service contracts? YES/NO
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For full competition rules please send an s.a.e. to the competition address.

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COMPANY NEWS

SCHINELLER . . . "50% rise in order position."

The rise and rise of Decision Data

THE spectacular recovery of Decision Data, the US-based IBM-compatible peripheral supplier, continues apace.

Third quarter sales rose 55% to $19.1 million, while profits were 85% up on the third quarter of last year at $957,000.

The British Technology Group holds a direct 15% stake in Decision Data, with a warrant to buy 25% more of the company's shares.

The stake, which BTG took via Data Recording Instruments, cost $7 million, and conservative estimates suggest that the BTG share is now worth between $14 and $20 million.

The full nine-month figures for Decision Data show total turnover of $53.2 million, more than the entire sales for 1980-81.

Profits for the nine months were $2.6 million compared with $1.3 million in the first three quarters of 1980-81.

According to Decision Data's president Dick Schineller, the company's backlog of orders has now risen to $17.8 million, a 51% increase on the order position this time last year.

Schineller also noted that the company was now in its seventh successive profitable quarter, demonstrating "a continuing ability to increase both revenues and earnings."

Much of the turnaround has come from the new IBM-compatible terminal launched by Schineller soon after he took over as president.

The terminal has sold heavily in both the US and Europe, and has enabled Decision Data to expand its overseas operation.

Results at Apple confound critics

THE best-known name in the microcomputer business, Apple Computer, has confounded the cynics and turned in annual results showing sales 74% up on last year.

The company, widely criticised for its tardy introduction of new products to follow the Apple II and III had sales for the year ended September 1982 of $583.1 million, compared with $334.8 million in 1981.

Profits followed sales and grew at 56% to $61.3 million.

Although the overall growth rate slid from the 100% achieved between 1980 and 1981, the drop to 74% was small, especially in the middle of the worst recession for 50 years.

And Apple looks to have returned to higher levels of growth in the final quarter, with sales 80% up on the same period in 1981.

Sales for the fourth quarter were $175.8 million and profits were $18.7 million, a 71% increase.

HENSON . . . "Uncertain".

Prime keeps up growth

PRIME, the Massachusetts-based producer of 32-bit minis, has managed to maintain its 20% growth rate throughout the first nine months of what company president Joe Henson described as "a very uncertain economic environment".

Results for the nine months show sales at $317.4 million, compared with $265.1 million for the same period last year.

Profits rose to $32.7 million compared with $27.2 million last year. The 18% third quarter rise in sales was slightly below growth in earlier quarters this year.

Sales for the quarter ended October 3 were $109.1 million, compared with $92.5 million for the October quarter last year.

Profits rose to $11.1 million for the three months, a $1.5 million increase on the third quarter of 1981.

ICT aims for Stock Exchange quote

THE desire for a direct quote on the UK Stock Exchange looks to be the reason behind International Computers Technology's bid for the listed UK firm Electronic Machine Company.

The bid, based on a one-for-one swap of EMC's shares, was described as unwelcome by EMC directors.

ICT, which is registered in Luxembourg and quoted on the Stock Exchange there, aroused interest and controversy a few months ago with the announcement that it would be developing with the Conic Group in Hong Kong a £1,000 display and memory communications terminal.

The main development details for production of the Triumos 2st terminal in Hong Kong are understood to be complete.

ICT president Cecil Kernot says the company intends to produce up to four million of the device before 1984. Most of the production to the end of this year, when about 200,000 of the devices will have been produced, is said to be for firm orders.

Kernot has not identified the source of the orders although he has said that the target market for the device is the PTTs in various countries, including the UK.

ICT recently put out nine months figures which showed a £16.4m unaudited profit.

Kernot has long sought a stock quote on the US Stock Exchange and the bid for EMC looks like a tactic to achieve this strategy.

EMC's shares rose from 11s to 30p on news of the bid.

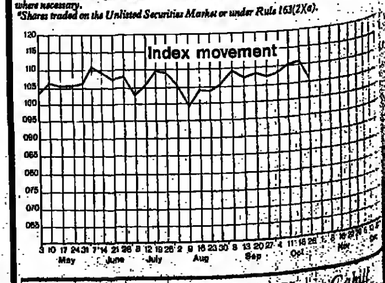
SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry

Date 29/10/82 Index 106.31 Chng +3

Fence 1982 High	Fence 1982 Low	London Stock Exchange Stock	Price	Chge	Fence 1982 High	Fence 1982 Low	US Stock Stock	Price	Chg
220	161	ACT (Apre Comp) (25p)	220		30	16	Amdahl	24	
180	160	ADC Int. (25p)	160	-5	29½	11¾	Apple Inc	24½	-½
37	16	Applied Comp (25p)	17	-1	29½	20	Audio Data Pro	24	
157	101	Chubb (10p)	156	-2	44½	30½	Burroughs	44½	+½
80	60	Comp Security (25p)	60		19	9	Comp Automation	18	
203	138	C.A.S.E. (25p)	138		17	11¾	Comp Business	17	
202	128	Da Lo (10p)	128	-2	16½	9	Computer Data	16½	
260	205	Data Int (10p)	205		28	17	Control Data	28	
264	212½	Ferranti (50p)	212½		32	23	Data General	32	
1045	787	GEC (50p)	1160	+10	36	24	Digital Equip	36	
78	33	ICL (25p)	36		29½	21	Diversified Data	29½	
47	33	Interlogic (10p)	33		29½	21	Electronic Mem	29½	
215	203	Kode Int (50p)	215		28	17	Gen Automation	28	
118	111	Norpak (10p)	118		28	17	Honeywell	28	
160	113	Quantel (10p)	160		28	17	Hewlett Packard	28	
208	208	Smartcat (144) (5.0p)	208		28	17	Honeywell	28	
820	670	Sperti Corp	820		28	17		28	
520	440	Software & Elect (25p)	520	-20	28	17		28	
520	440	Thales Comp (50p)	520		28	17		28	
520	440	Thorn EMI (50p)	520		28	17		28	
90	80	Quest Automn (10p)	90	-10	28	17		28	
260	240	Vinten Broad (50p)	260		28	17		28	
111	111	Tech Inv (25p)	111		28	17		28	
68	34	Wang Labs (25p)	68		28	17		28	
		UKO (50p)			28	17		28	
		OTHER MARKETS*			28	17		28	
60	42	Bus Comp (10p)	60		28	17		28	
200	200	Comshare (25p)	200		28	17		28	
195	195	Micropro Tech (20p)	195		28	17		28	
260	240	N Tech (50p)	260		28	17		28	
68	45	Quest (5p)	68		28	17		28	
180	118	Wilde St (10p)	180		28	17		28	
170	68	Wang (A)	170		28	17		28	
170	68	Wang (B)	170		28	17		28	
155	78	Xebec & Webtec (10p)	155		28	17		28	
155	78	Xian Data (10p)	155		28	17		28	
155	78	Xidex Corp (10p)	155		28	17		28	
115	70	Zygal Dyn (50p)	115		28	17		28	

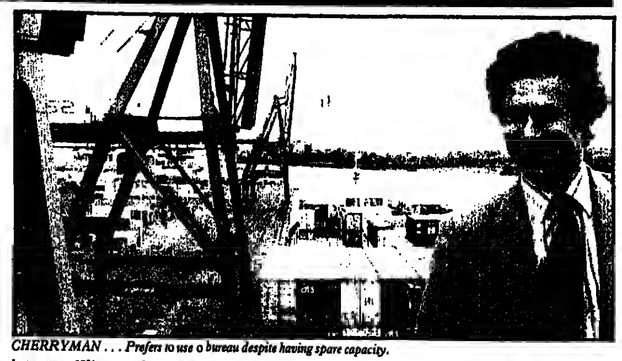
The table shows the closing prices in London on Friday and in America on Thursday. The Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.
**Shares traded on the Unlisted Securities Market or under Rule 163(2)(a).*



Company News is compiled by Kevin Cahill

WORKPLACE

No redundancy fears for ops at this site — they've never had any!



CHERRYMAN . . . Prefers to use a bureau despite having spare capacity.

MUCH has been written on the demise of the computer operator following the introduction of "operatorless" systems like the ICL ME29. Well, I can reassure those worried by this trend that at least one site with twin ME29s has not made a single operator redundant.

They didn't have any to start with.

Solent Cootainer Services in Southampton handles 250,000 cootainers a year — and they hold anything from fruit to made-in-Hong Kong water pistols. This makes SCS the largest single handler of container traffic in the UK, and it takes up three of the five berths in the Prince Charles Containerport.

Each of the berths has a 330 metre quay — large enough for 30,000 ton ships, five of which can be loaded and unloaded each week. The movement of the imports and exports through the port was once controlled by a system of cards and pigeonholes to indicate where each container was from, where it was going, and where it was located in the massive container park.

In 1974 an ICL 1902A was installed, with the intention to run it without operators from Day One. An online system based on ICL's Driver software was developed by the entire SCS DP team — three people.

"Rather than have a large number of people working on horizontal chunks of the project, we decided it would be preferable to have two or three good people working on it vertically," says systems manager Mike Cherryman.

"With the same people working on every stage of a project, not only do you avoid the typical DP buck-passing — when the system doesn't work, the programmers blame the analysts, and the analysts blame the programmers — but the job interest is much higher and you can hang on to good staff much more easily."

"We have three development staff and no operators. The computer room is unmanned and locked most of the time. The computer should be a black box which is kept out of sight rather than being used as an excuse for empire-building, as is often the case."

Each member of Cherryman's team is responsible for certain areas of operations. They determine system requirements, devise an approach, write the programs and implement the system.

All development is done via MAC terminals ("Everyone does program development on VDUs now — I hope," says Cherryman) and no operators are needed.

"Not even for backing-up?" I asked.

"We don't back-up," replied Cherryman disarmingly. "We don't stop the system — it runs seven days a week, 365 days a year. We even leave the emmys powered up over Christmas. We don't move disc packs, don't use tapes — we can't justify having any operators."

It's not that unusual to find ME29s being run without operators, but Cherryman admits ICL was a little surprised to find that SCS was running its 1902A, and the twin 1901Ts that superseded it, in the same way — eight years ago.

"No one had done it before," says Cherryman.

There is no standby power supply for the ME29s, and for good reason — all the dockyard equipment is electrically powered, so it matters little that the computers cannot be used during a power failure because the whole port stops too.

The SCS policy of leaving the machines powered up all the time, and leaving the disc packs on the drives, seems to be paying off too. Cherryman told me that there have been no hardware or software failures on the system for the last six months.

Just when I thought that SCS could hold no more surprises for an old mainframe operator, Cherryman sprung another one on me: "We don't have any routine maintenance either. It's cheaper to buy a second emmy than to pay for the sort of cover we'd need with a single processor system."

There are no passwords either — is nothing sacred? ICL goes to all the trouble of developing a lovely little operating system like TME and along comes someone who'd rather get back to basics. "We've taken the operating system out of the way of the user," says Cherryman. "I'd like to get rid of the whole log-in sequence too."

"But surely you don't want to do all your work in one directory?" I asked, every last one of my preconceptions on how to run an installation lying in tatters around me.

"Why not?" replied Cherryman. "There are only two systems staff and we know what we're doing."

And what the system does is this: Details of each container are given to the system before they actually arrive at Southampton. The containers may arrive by road, but most, 60%, come by rail on one of the eight trains a day arriving from all over the UK. The system controls the movement of containers between the railhead and the dock in order to coincide with the train schedules, and additionally produces a list of return loads from the containers arriving from aboard.

The system holds a model of each of the 28 ships using the port, and the containers are categorised according to voyage, port, weight and size. The machine thus calculates where the containers should be loaded in the ship to facilitate unloading at the port of delivery, and to ensure that the ship is stable.

There are currently 45 VDUs linked to the system.

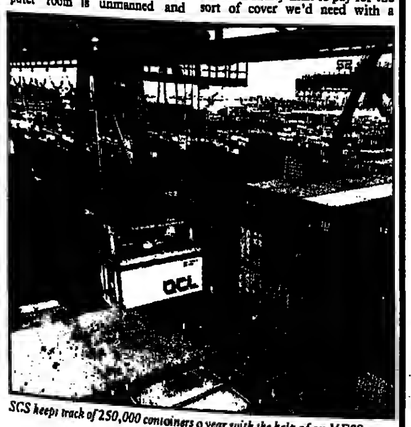
SCS employs 200 staff, most of them on one of the five shift teams which provide round-the-clock operation.

A point which came up more than once was SCS' insistence that DP should be an integral part of the company rather than a monolithic sub-division as is all too often the case.

"We use computers as a tool, in the way you'd use a ruler, pencil or calculator," says Cherryman.

This is illustrated by the fact that although SCS has plenty of spare capacity on its two ME29s, it prefers to use a bureau for batch applications such as payroll.

"It's far cheaper to use a bureau," says Cherryman. "If we were to do it ourselves, we'd have to employ operators."



SCS keeps track of 250,000 containers a year with the help of an ME29.

Workplace is compiled by Philip Hunter and Andrew Thomas.

PUZZLER

THREE
SEVEN
TEN
TEN
TEN
TEN+
FIFTY

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See page 45 for solution.

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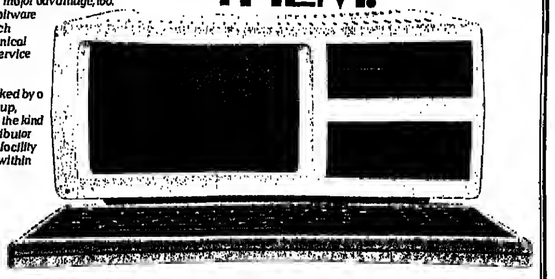

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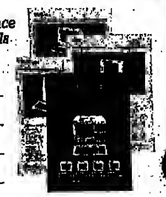

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PLATFORM

Stop fighting each other for staff – and train your own

The author, David Blechner, is joint chairman of Star Computer Group.

HOW much longer is the UK computing industry going to rely on the large manufacturers or software houses to train its staff?

Traditionally, organisations like IBM and ICL have taken in trainees and put them through good in-house courses, only to find that a couple of years later they move on to other employers.

The problem is that the computer manufacturers have finite resources. They can only put so much into the training pool. Admittedly, the Manpower Services Commission, through its much-maligned Tops scheme, aims to boost the number of computing trainees – but no-one seems to want them.

The norm is that companies looking for programmers, analysts, engineers – even salesmen – demand two years' experience, with the result that software and systems houses are constantly competing with manufacturers and computing services organisations, using money and the promise of a creative environment to tempt them away from current employers.

It is time for the smaller firms to call a halt to this job-hopping merry-go-round and take on part of the training burden. Software and systems houses in particular should be more willing to take on inexperienced people.

This could be approached through some form of articled clerk or apprenticeship scheme, similar to those of firms of professional accountants or solicitors.

However small – even if they employ only half a dozen people – the firm takes on a junior or clerk and, with the help of a principal to act as guide and mentor, trains the junior on the job, normally over a three- or five-year period.

Trainees could become proficient more quickly in the computing field, probably over an 18-month to two-year period.

Entry need not be confined to graduates, with companies' aptitude tests and other selection methods used to screen applicants. Once accepted, they should undertake regular examinations and be given study release for outside courses to supplement in-house training.

It would be easy to dismiss the idea of apprenticeships in computing, particularly as the management of the smaller companies seem hide-bound in their attitudes towards training, preferring to take on experienced people. But if they do not change their approach, the computing industry as a whole must eventually suffer.

It is a very much an attitude of mind – an attitude which unfortunately does not come easily to managers in the UK.

This attitude can be seen, for example, in the secretarial field. In the UK if a girl applies for a job as a secretary she goes along for an interview, where she might be given a typing test. If she gets the job, she is taken on, with the expectation that she has sound secretarial skills and that she will immediately become productive.

But any person moving to a new job needs some form of training. Whether it is secretary, clerk, receptionist or telephonist, they all need to be shown what to do.

In Germany and Switzerland, the attitude is quite different. When a new member of staff joins a company, the manager responsible spends time personally training them.

In other words, he or she acts as a mentor. This is what we need in the UK for computing trainees.

Star adopted this approach some years ago. It is a matter of policy that we train people in all departments. Star started with a handful of personnel, but today we have over 150 people – many of whom we have trained internally.

Most recently, for example, we took 10 Tops trainees. They had a good basic foundation on which we are now continuing to build.

Acting as mentor to the group is chief programmer John McCarthy. With Ray Walters, who heads the software department, he is helping the Tops trainees to develop their skills in Business Basic, initially writing new application programs.

They will later move on to software development, program amendment and bespoke applications.

The group ranges in age from 19 to 34, and comes from a variety of backgrounds. Some have worked in accountancy, some in stock control, others in retailing. So it goes to show that a degree in computer science is not a prerequisite to working in computing.

Trainees straight from Tops retain their flexibility and have no need to unlearn bad programming habits or approaches picked up elsewhere in the industry.

Fifteen months ago we took on six Tops trainees and five are still with Star. One has done so well that he is now a senior programmer.

But the UK computing industry cannot expect to rely solely on intake from Tops courses. We desperately need new blood if the industry is to continue to flourish, which in turn means we must widen the variety of people moving into computing.

Computing apprenticeships could well be the answer. Firms must stop fighting each other for staff. They should train their own.

David Blechner

PROFILE

The man who offered users a better deal

IMAGINE you are part of a large computer company and responsible for providing service to its customers in the South-west. Although your employer is a well-respected organisation, you feel it isn't doing all it could in providing the support you need to do your job properly.

Spares are in short supply and, possibly because of its size, the company doesn't respond fast enough to enable you to keep the customers happy.

This is the situation in which Gerry Tuffs found himself five years ago. And, rather than carrying on in this way, he decided to take some positive action. Tuffs visited the customers in his region and convinced them things could be improved.

The users agreed to part with three months' maintenance charges in advance, which gave Tuffs and his partner Brian Jones the required cash to buy spare parts and to start out on their own as a service company. Thus it was that the company that was to become Data Type Terminals was born in October 1977. With a staff of four and a capital of £1,000, the company began providing the service and maintenance of terminal equipment in Wales and the South-west, formally adopting the name Data Type in May 1978.

As Data Type's business increased, it was able to diversify its operations. Starting in much the same way as other companies, it moved into the DEC OEM market. In early 1981, a major step was taken with the launch of the Smart 80 VDU, the first product to be designed and manufactured by Data Type itself at its Cwmbran factory.

The company was now in the enviable position of having doubled its turnover and profits each year since its formation. Further own-built products appeared, principal among them a graphics board for the Televideo range of terminals distributed in the UK by Data Type.

By the end of 1981, the company had attracted the attention, and the money, of Citicorp Development Capital, a subsidiary of the US Citicorp bank. Initially, £325,000 was made available from Citicorp's reserves of £15 million. The cash injection was used both to introduce more graphics products to the UK and to facilitate the acquisition of marketing companies across Europe to expand the company's base.

The first of the European purchases was the German arm of the failed Data Dynamics empire, Teledynamics GmbH, for £500,000. Shortly after the German takeover, a US subsidiary, Data Type Inc was set up, principally to manufacture graphics boards.

Again the money for the new operations was supplied by Citicorp, whose vice-president, John Sweet, now had a seat on the Data Type board. A further part of Data Dynamics came under Tuffs's sway in August when Teledynamics AG became the Swiss subsidiary of Data Type.

By now the company was, in Tuffs' view, in need of reorganisation. With this aim, Data Type International was formed as a holding company for the US, European and US operations. Tuffs became chairman of the new company, and for the first time the company be had run since its formation passed out of his direct control.

Brian Wildeman was brought in from Penny and Giles to head the UK company as it began production of a new range of graphics systems. Tuffs is now looking for a quotation on the Unlisted Securities Market next year – and his ambitions do not stop there.

"We are looking forward to significant increases in our export business, so much so that we are hoping for a Queens Award for Export within two years," he says.

And with the acquisition of a Dutch company on the horizon, and an anticipated group turnover in excess of £7.5m next year, it would be unwise to bet against it.

TUFFS . . . "A Queens Award within two years."

DOWNTIME

Sinclair comes to the aid of the party

DID you see the party political broadcast (no, I thought you wouldn't have) on behalf of the Conservatives?

Among good reasons given for not changing direction at this stage was the towering achievement of Uncle Clive with models like the ZX81 "built not in Japan, not in Taiwan, not in the USA, but here in Britain and mostly in Dundee".

Well, I'm sure they're right, but I distinctly recall the week before in *Futures* Uncle Clive said that manufacturing in Britain would shortly be a thing of the past and all the factories were likely to be in the Far East.

What's a bit disturbing is that the last time the Conservatives chose a favourite uncle it was the high-flying Uncle Freddie – and you know what became of him.

And talking of Sir Freddie, I see that large computer companies, for example Digital Equipment and Hewlett-Packard, have taken advantage of management training offered by the Kepner Tregoe organisation. But one man when approached by Kepner told the company to go eat coke. Yes, Sir Freddie Laker.

He had been invited to buy one of Kepner's management training manuals. His written reply was: "I have no need nor use for such a book."

Kepner managing director Brian Bentley now has Sir Freddie's letter framed. But was too polite to comment directly on Laker's more recent demise. However, one of Bentley's subordinates bitched: "Now Freddie would flog the book secondhand."

Drifting to pastures green

AS the lesser landed classes continue their decline, many old country mansions face conversion or dereliction. Some become old people's homes, others hotels or country clubs. More recently, a few are becoming showcases for UK high technology.

For there can now be seen a slight, but discernible drift of computer companies away from architectonic office monoliths, to old country chateaux.

One such is Able Computer of Newbury, which has moved out of the town to a nearby country house in ample grounds – all the better apparently for visiting US executives to pass a peaceful night.

It must hurt some traditionalists to see Blizabethan corniche-laden interiors bastardised by VDUs.

New breed

THE big bureaux which sell time on mighty mainframes are slumbering to their death. But from their ashes rise a new breed.

Toronto is the venue for an experiment in a new form of time-selling. Patrons at the City libraries can buy ten minutes on a microcomputer for home accounting, letter writing, by inserting a $1 coin.

Shake-up for stirrers

THE art of tea-making was the subject of a two-year PhD thesis recently. The student concerned came to just one conclusion: that stirring the pot is a waste of time.

Surely there are 10,000 tea ladies who could have told him that, though doubtless I could find another 10,000 who religiously stir the pot at four o'clock every afternoon, and would disagree with his finding.

Meanwhile, inside the computer industry, research much more relevant to tea has taken place. The Post Office at Chesterfield has found a way of tapping the data from its computer for tea-making. Energy conservation engineer Les Pashley, who installed the system, expects it to save £800 a year on the gas bill. The amount of heat provided is 35 kilowatts, equivalent to 70 human beings, or a powerful domestic electric fire.

So while academic youth writhes in a vacuum, computer power tackle the world's problems.

Sage has the answers

AS Margaret Thatcher sweats under the spotlight of the Franks investigation into why she was caught napping when the Argies tupped into Port Stanley, she must be wondering why she did not talk to wise old Sage at the time.

Sage is the expert system generator developed by SPL International. One expert system it has generated for Shell to play with gives political advice on the wisdom of making oil investments in Third World countries.

The user of this political risk analysis system is led through about 50 questions to determine the likelihood of oil assets being nationalised, seized or blown up.

The system was tried on the Falklands using information available before the war. "A supreme risk of invasion by a foreign power," was the Sage advice.

And finally . . .

WHEN conference delegates return from a liquid lunch, speeches have to be dynamic to prevent few eyelids sagging.

A more practical way of keeping awake than refraining from intake of beverage during the lunch is to keep track of how often certain clichés recur in the speeches.

At the recent BIS fourth generation conference, one speaker managed to use the phrase "at the end of the day" three times in five sentences.

By such repetitions are clichés born. But it is only fair to point out that politicians and economists are also often guilty of "end of the days" and "at this point in time" instead of "finally" and "now".

When hearing such clichés it is worth remembering why they are said. Either the speaker is nervous or, as with many politicians, has nothing to say.

Chip

10 YEARS AGO

FROM COMPUTER WEEKLY OF NOVEMBER 2, 1972: Acquisition of ICL shares by Pleasey and GEC ensured that over 50% of the shares were in British hands . . . Lloyds Bank announced that it would set up a computer centre based on twin IBM 370/168 configuration worth over £6 million . . . Salaries for data processing managers ranged from £2,100 to £3,750, according to the latest salary review.

Liveware File by Don

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, November 4, 1982

Endangering the nation's recovery

ANOTHER government report has emphasised the need for increased spending on information technology. This time it has come in the form of a report to the Secretary of State for Education and Science, Sir Keith Joseph, from the Advisory Board for the Research Councils.

The sum is modest – £50 million over five years – but it is clearly seen in the context of a national programme such as one based on the recommendations of the Alvey Committee.

It is also clear from the Advisory Board's report that there is a growing belief from all sectors of the country that the government's policy on education and training is seriously undermining this country's ability to make full benefit of advanced technology. The report says that "severe cutbacks in the universities where so much of our science, basic and applied, is sustained, are now endangering the country's position in science and its capacity for recovery, and so eventually its competitive economic position in the world."

It went on to appeal to Joseph to "use your best endeavours to secure an increase in the science budget which will enable those opportunities to be exploited and help to mitigate the damage already done to the university research base."

In September ICL managing director Robb Wilmot began the chorus of industry leaders criticising the government by saying the drop in enrolment on computer science courses was a disgrace. The Alvey Committee echoed his sentiments, and added that while it supported the government's intentions in putting a microcomputer in every school, on its own it would "merely produce a generation of poor Basic programmers".

We have said before on these pages that the most important resource of this country is not its oilfields or coalfields or agricultural abundance. The most important resource of the UK is its people. And the policy of the Thatcher government to pour educational resources into low level vocational training offers little hope for the country's future as an economic and social power.

The government makes much of the fact that its policies will secure a better tomorrow if only we "stay the course". There is nothing in its approach to education that gives us much faith in that call.

Poor response

THE industry's guarded acceptance of the Alvey Committee's report is a positive first step in getting an "advanced information technology" programme off the ground.

What is not so welcome, however, is the wholly inadequate response given to the report from its sponsors, the Department of Industry, and its Treasury paymasters.

The Committee's report provides an adequate, if not perfect, basis from which to launch the UK into the "electronic" age. And as many of the people and organisations contacted by Computer Weekly said, "It might have the details wrong, but we can sort those out once it is underway. The important thing is to start as soon as possible."

The Committee recommended an April 1983 start. Whether this can be met depends on the Queen's speech, delivered to Parliament yesterday.

That the industry, in all its many divisions – professional, commercial and academic – is prepared to back the report despite its reservations is ample evidence of how seriously the threat of rival projects is viewed. That it emphasises the importance of an early start, with early commercial pay-offs, is a welcome sign of a willingness to accept the changes in the way the industry is run in the UK.

The government, whatever its record on an economic front, has shown a commitment to information technology. It would be a great pity if, given the level of industry support, it were to back off from the Alvey report, as it did from the Beesley report on the liberalisation of the UK telecommunications industry.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Mrs M. Jones of Rotherham, South Yorkshire, who wins £5.

And in a few years we'll all have our own home computers for self-diagnosis. No more waiting rooms or overworked doctors . . . It's got to be good news.

Woman's Realm

LETTERS

'Wrong experience, no job' problem

YOUR headline (CW, October 7) concerned the plight of Tops graduates should surprise no-one who reads the job opportunities pages of your newspaper. There is a diminishing requirement for the 12 to 24 months experienced Cobol programmer, but an increasing requirement for people with experience in communications, databases, TP systems, software engineering, systems programming, real time command and control systems, avionics etc.

It seems to me that the MSC has failed to recognise the rapidly changing situation in the computing industry in which one notices that organisations do not now, as is suggested, have to take on trainees to replace people of the bottom end, mainly because the bottom end is a declining occupation.

This is partly due to the ease with which an internal candidate can be selected and trained to write bottom end programs. More significantly, however, an ever-increasing number of organisations are now designing complex software for the type of system mentioned in my first paragraph using development systems and software tools which reduce the need for extensive source program coding.

Many applications are now, of course, designed and implemented parametrically, as witnessed by the thousands of small to medium firms which are using minis and micros without employing any professional computer staff.

The skilled end of computing will soon be adequately met by retraining existing skilled personnel, and by students emerging from the higher education sector with qualifications and experience in computing and related disciplines.

Your Profile article also suggests that there will be little room left for high level procedural programming languages on fifth generation systems. The "poor users" way into future computer systems will be by high level, non-procedural mechanisms including voice and graphics input/output.

I am familiar with the topics studied by Tops graduates. The MSC is currently training people for a job which the industry is running down. There is not, in my opinion, a "no experience, no job problem but rather a "wrong experience, no job" situation.

In five years' time, a large number of people will be able to write computer programs, owing to changes in our secondary/tertiary education system. Also in five years' time, the computing industry will be so concerned about the "people cost" of computer systems, that any approach to system development and implementation which reduces the need for large-scale, low-grade application program source encoding will be taken on board.

Perhaps the MSC should design courses for someone called an "intelligent computer user". Such a person would have a knowledge of the technology of computer-based information processing systems, and be skilled at communicating with them.. He could then be usefully employed at the interface between the user and computer department.

W. D. NASH

Fulwood,
Preston, Lancs.

Making technology courses relevant

MAY I try and clarify some points regarding the letter from K. Parkins (CW, October 14).

I am surprised that he was offered a place at Surrey University for a course that was subsequently "turned down" by Tops. In my experience, albeit in a polytechnic not a university, course applications are only invited *after* Tops has approved the broad course objectives and has agreed to fund the course. A course for unemployed graduates which started at Trent Polytechnic, where I am a senior lecturer and a Tops course tutor, was discussed in detail nine months before the course start date, by MSC and several polytechnic representatives.

Far from being "unaware of the implications of IT" the Manpower Services Commission/Tops staff both locally in Nottingham and at MSC headquarters in Sheffield are actively interested in making sure that courses are relevant to growth area technologies such as microprocessor-based systems, fibre optics and robotics. The raison d'etre of MSC is to make any member of any of its courses ultimately more employable.

Interviewing candidates is (or should be) undertaken by a panel consisting of representatives from the academic institution, MSC, and, if possible, local industry, if the course is sponsored under the Tops scheme.

If Parkin gained his degree ten years ago then even a "diploma in electronics" which he seems to belittle, would give him some awareness of the state of the art.

I hope that the bitterness he so obviously feels is not bought to the fore in any career interviews.

Dr R. A. COOKE

Sheffield.

Bureaucratic encounter

I WAS fascinated by Keith Parkins' account of his encounters with Civil Service Tops bureaucrats who had denied funding to a course in systems engineering (CW, October 14). It does indeed appear that the civil servants concerned had no technical knowledge of the requirements for information technology.

But arbitrary decisions on technical topics are commonplace in a bureaucratic body, such as the UK's Civil Service, which is devoted to the "cult of the amateur" in dealing with anything from economics to microchips. How many senior officials in, say, the Department of Industry are in any way qualified or experienced in computing particularly those who decide where to spend the public's money?

Part of the British malaise, no doubt. Which of the "two cultures" will win out in implementing Britain's course in information technology, I wonder?

I. J. G. NATHAN-DOREY

Lancaster.

Scheduling system

WITH regard to the article (CW, October 7) by Claire Gooding on Computer Associates' product, CA Scheduler (late of Capex), I would like to correct the impression that this package is the first to supply an all-embracing method of controlling operations.

CSAR (Computer Scheduling and Reporting System) developed by Software Concepts Inc of Atlanta, has since 1978 been the only scheduling system that provides automatic job submission and online inquiry and tracking for both DOS/VS and OS users. The DOS version of this product was written for this operating system and is not a converted OS version.

DOUG CORNWALL
Director
International Software Co,
London W1R 1RE

Behind the times

CHAD'S gossip (CW, October 21) is a little behind the times. Never mind about the fifth generation, his gossip hasn't even reached second generation.

I first heard the term "mushroom management" used in 1970 – by a DEC field service engineer, to describe his own department. I'm sure it was not new then, reputedly having been imported from the US, so it is now at least 12 years old.

ALAN FRANCIS

Milton Keynes.

Automatic transfer

WITH REFERENCB to your article (CW, October 7) regarding the introduction of Captec, an industrial system "which provides full hot standby dual processing, equivalent to those offered by Tandem for the commercial market", I would like to point out an inaccuracy.

The Tandem system is not a hot standby but a truly multi-processor system which has the ability automatically to transfer the workload from one processor to another in event of failure. During normal operation all processors can be used for productive work.

GEORGE WILSON
Marketing Manager
Tandem UK
Northolt, Middx.

Anniversary

THIS year sees the 20th anniversary of the Dunlop Computer Centre at Fort Dunlop in Birmingham. To celebrate this event we have arranged a reunion for current and ex members of staff, to be held in mid-November.

If any readers, who are ex employees of the Dunlop Computer Centre, are interested in attending this function, they should contact me for details as soon as possible.

JOHN BOWNES
Programming Consultant,
Management Services
Dunlop,
Fort Dunlop, Birmingham.

Exploitation of women

THE article by Julie Cotterill, "Growth in computer industry has led to the exploitation of women" (CW, October 21) has prompted me to reply, as it seems that the Women and Computing conference took a somewhat pessimistic view.

The advantages of the computer are considerable for women. Look at the jobs that are being created every day – the ever expanding computer media, with consequent journalism, advertising artwork, etc, the many computer exhibitions, the designers, the computer accessory market, the whizz kids of electronics – there must be a number of women among these.

The computer accessory market has certainly opened new horizons for myself. I work in an office in my own home, doing publicity for my husband's range of computer cleaning products and consequently have an interesting and ever-changing experience of industry in general.

A number of my friends who also have families or dependents prefer, like me, not to have a 9 to 5 job, travel in the rush hour, and arrive home exhausted to face the housework. Computers, data collection terminals, memory typewriters, etc, give us the opportunity of working at home, at weekends, or in the twilight hours when the children are asleep, instead of having to apply for work which would interfere with school times.

Perhaps the pattern of work, the hours, and leisure time is changing radically, and with the aid of the personal computer. Hopefully, human nature will blossom in harmony and consideration, for without this, the new age of technology promises to be very hard indeed.

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PEOPLE

Top award for HP chairman

DAVID PACKARD, chairman of Hewlett-Packard, has been presented with what is regarded as the highest award in the US engineering industry – the John Fritz Medal. The award recognises scientific or industrial achievement in any field of pure or applied science, and is given by five of America's engineering societies.

Packard founded Hewlett-Packard in 1939 with his former Stanford University classmate William Hewlett. They initially operated from a garage in Palo Alto, California. Last year the company, which now operates in 45 countries, netted gross sales of $3.58 billion.

The award puts Packard in good company. Previous winners have included Alexander Graham Bell, Thomas Edison and Gulielmo Marconi.

PACKARD . . . "Enlightened".

This year's citation for the award highlighted Packard's "distinguished achievement as an engineer, eotrepreneur, enlightened manager of people, industrialist and statesman in the application of advanced technology."

■ CPT, a US manufacturer of office automation systems, has appointed **Kathy Devany** as managing director of CPT UK. She joined CPT in 1974 and before her promotion was director of Eastern US dealer sales.

■ *Atari home computers* division has appointed **Jack Knight** as national accounts manager. He previously worked for Texas Instruments, where he was involved in the company's launch into the home computer market.

■ Lowfield Distribution, the Daventry-based grocery distribution company, has reorganised its management services department. **Alan Purcell** becomes management services manager. He joins the company from ICL where he was a senior business consultant. Reporting to Purcell will be Sue Elston as data processing manager and **Rod Kerns** as administration manager. Elston was previously a project leader in the management services department and Kerns was the company's administration controller.

■ Sapphire Systems, which recently announced details of a merger with software house Business Solutions, has appointed **Roberta Blick** as European sales manager. She joins the company from Olympia International where she worked in European marketing.

■ *Peter Emery* has joined Philips Business Systems Viewdata as sales executive. Thia follows a career with Telefusion and Rediffusion, where he spent a number of years handling consumer electronics as audio manager and later district sales manager.

■ Dialogue Distribution has appointed *Mike Heath* as area sales engineer covering London postal districts. He joins the company from SGS, where he was a senior sales engineer specialising in telecommunications and military components.

■ UK subsidiary of Canadian firm Geac Computers has appointed **Bill Ross** (above) as general manager, general systems division. He was formerly the company's sales manager, peripheral products.

■ Harris Information Systems' international division has named Alan Currier national sales manager. He has been with the company for five years.

■ New programmer/analyst in the finance and DP department of Rediffusion Computers is Dermott Renner, formerly a freelance administrator.

■ Data communications company Jaguar Communications has appointed **Reg Bundock** as engineering manager. He was previously with Computer Automation for eight years, working in technical support.

■ The telecommunications division of Cable and Wireless has appointed **Roy Michael** as a sales executive. He joins the company from Rank Xerox, where he was a product specialist.

■ The Royal Bank of Scotland has anpointed **Harvey Macmillan** as assistant general manager (DP). He has been with the Royal Bank since 1954, serving latterly as controller, systems development.

■ Independent software consultant Systems Designers has appointed **Derek Larman** as business development manager for the defence industry. He was previously with ICL.

■ Lambart Computing has launched Lambart Computing Inc, based in New York City, US. Responsibility for the US operation is in the hands of vice-president **George Ellis**, formerly marketing manager in the UK.

■ **Tom Buckley** has been appointed sales executive at the telecommunications division of Cable and Wireless. He will be based in London. He joins the company from Case where he was a sales executive responsible for word processing sales in West London.

■ Memory Computer Services has made two new appointments – senior analyst for its Northern office and a systems and programming manager. Dalim Basu has left Lucas-CAV to become senior analyst and Raymond Nash has left Ever Ready, where he was systems development manager, to take over as systems and programming manager at Memory.

■ **Keith Hall** (above) has been appointed to the board of Apple Computer UK. He joined the company last May to head the sales operation and was elected to the board on the announcement of his new title and increased responsibility as sales and marketing director.

DIARY

NOVEMBER 8

Artificial intelligence – the extent of AI and its relationship with the fifth generation. IDPM Scottish branch. Edinburgh University, Students Association, 60 The Pleasance, Edinburgh. 7.30.

NOVEMBER 9

Stationery road show – forms design and systems construction. IDPM Sheffield branch. Grosvenor House Hotel, Sheffield. 7.00.

Information processing – how does it support top management? IDPM West London to Oxford branch. Bull Hotel, Gerrards Cross. 7.30.

Impact of the microprocessor on commercial data processing. BCS Croydon branch, Fairfield Halls, Croydon. 7.15.

NOVEMBER 11

Bob Jenkinson from IT82 will demonstrate the impact of the computer on people's working, domestic and social lives. IDPM Essex branch. County Hotel, Rainsford Road, Chelmsford. 8.00.

Pascal-m: a language for the design of distributed systems. BCS Advanced Programming Group. Prudential Assurance, 142 Holborn Bars, London EC1. 6.30. *Details from Theresa Drew on* 01-580 6622.

NOVEMBER 15

Fourth annual conference. Systems controls – the future. BCS Auditing by Computer Group. London Press Centre. Fee £60. Book early through D. Fieback, Hacker Young, St Alphage House, 2 Fore Street, London EC2Y 5DH.

Visit to Cranfield Institute of Technology Robotics. BCS Bedford branch. Apply to W. Chirton on Bedford 56013.

CONFERENCES

■ **THE National Physical Laboratory has arranged a one-day meeting of four lectures on the life and work of Charles Babbage to be held on December 10. It has been organised in conjunction with the BCS and has been given financial support by IBM and ICL. The programme covers Charles Babbage and the applications of science, his mathematical work, programme for the analytical engines and the heritage of Charles Babbage in New Zealand and Australia. The fee is £10 plus VAT, including lunch and refreshments. Applications to D. Davies, National Physical Laboratory, Teddington, Middx TW11 0LW. Tel: 01-977 3222 ext 3053.**

■ A NATIONAL conference to be held on November 9 in Manchester will provide the construction industry with an opportunity to see how information technology can be used to advantage in the management of design office, quantity surveying, contract management, operations and maintenance, scheduling and stock control and safety at work. It is being held by the National Computing Centre. Details from Nicholas Cole on 061-228 0521.

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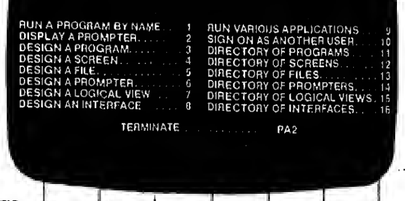

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DELPHIC POLL

Police Supt Dr John Hulbert measures technology awareness in the Force and asks how ready it is for change

A policeman's lot is not an automated one

MAN has always been fascinated by the future. It is not just an idle curiosity. The future encompasses the unknown, and the unknown is potentially dangerous.

Historically it has been prudent, as well as interesting, to attempt to acquire upon future events. Soothsayers, oracles and the Treasury economic model are just some of the instruments which have been used to prepare for an unknown and potentially hostile future.

It was an updated, but not essentially different objective which led my colleague, Chris Evans, and myself, to carry out a number of surveys during 1977 concerning potential future events in computing.

The people we focused upon were decision makers in the police force. We asked them questions which were aimed at exploring their awareness and preparedness for potential changes in their professional and private lives.

This year, 1982, has been designated The Year of Information Technology. It has brought to a climax an unprecedented amount of propaganda on the wonders of computer science, which includes such notable contribution as the *Tomorrow's World*, *Chips with Everything* and *The Mighty Micro* television programmes.

How much effect has this propaganda had? Are our decision makers now more aware of technological innovations, and ther likely effects? In order to find out, I ran a parallel of the original survey to try to aoswer some of these questions.

The Delphic Poll does not predict the future; it merely attempts to give an indication, albeit a pale one, of the way certain seccions of the public are thinking.

The results of the 1982 survey are shown by the black boxes in Figure 1, below.

The first impression is the wide range of answers to most of the questions. To some extent this is an artefact of the display used. While the block diagrams are easy to read, they mask underlying groups. Plotting these underlying groups showed that they were arranged in two distinct bands. The "average" group, together with some optimists, clustered around the median and a little in front of it (that is the ridge on the box). The second group was a very separate and smaller band of pessimists who clustered around in the "After 2000" and "Never" regions of most questions.

The overall results tended to suggest that "the average police decision maker" was fairly pessimistic about most of the suggested innovations. None of the innovations was expected to occur before 1985 – even those which are already in the shops!

Comparing the 1982 survey with the 1977 results, we find that despite the apparent pessimism of the current findings there has been an increase in optimism from an even more pessimistic set of opinions in 1977. Overall the average year in which innovations are anticipated has moved forward by about one year for each of the questions. This is quite significant given the five years' separation between the two polls. Many people tend to anticipate marvellous things in about a five-year time scale irrespective of when they are asked. Perhaps a more important indicator is the fact that the "Never" vote over the whole range of questions has been halved during the five year period.

Significant changes can be seen in a number of the areas which were thought to be relatively imminent in the 1977 survey. These are "pocket machines for practising mathematica", "collators records", "changed criminal activity", "the use of computers for police training", and "major automated car functions".

All of these in the 1982 survey have suffered from a pessimistic reverse. On the other hand, "portable terminals", "talking and reading books", "changes to the letter post" and, perhaps most dramatic of all in effect, if not opinion, the possibility of a "20 hour working week", have all been brought forward in the later survey.

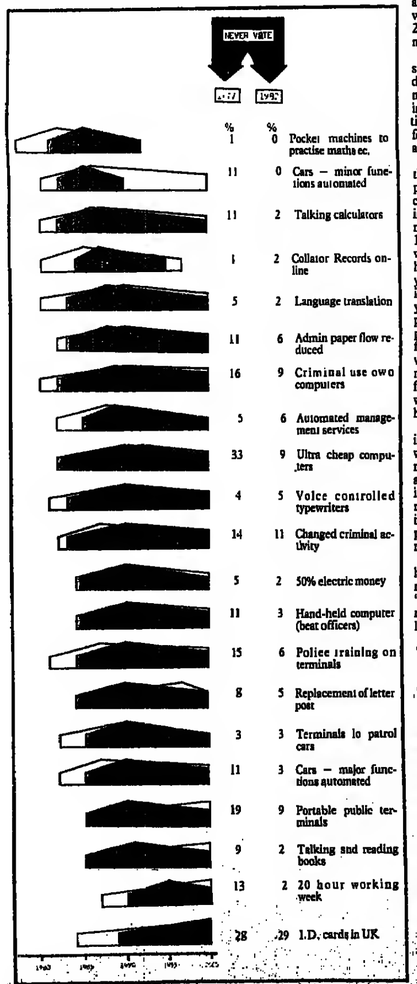


Figure 1. Dates show year innovation is anticipated.

Comparing the "Never" vote, which tends to indicate effects on the pessimistic members of our society, we notice that overall the pessimistic vote has reduced considerably with virtually no significant increases in this vote for any of the questions.

There were spectacular reductions in the pessimistic "Never" vote in the areas of "ultra-cheap computers" where it fell by 24%, the "effects on minor car functions" and "talking calculators". In harmony with the result from the average respondent, the "20 hour working week," "talking and reading books", and "portable terminals" were all given the "thumbs up" by the pessimists.

An odd result concerns "police training" where the pessimists tended to increase their optimism whereas the average person became more pessimistic. This suggests that the concensus in this area is increasing. In other words the opinions are bunching up.

The surveys were for the most part anonymous and therefore it was not essy to be certain whether the pessimistic groups had any particular make-up. However, other investigations suggest that the pessimistic groups may be senior in rank rather than merely senior in age. Certainly, as may be expected, the pessimists are not generally to be found among the younger element.

A considerable degree of interest, as distinct from knowledge, concerning technological matters was indicated by the fact that many people responded with additional questions. Many of these questioos were angled towards problems which had a particular police orientation; in most casea they covered subjects where people found difficulties with current manual systems. Included in these were:

- Methods for reducing the enormous amount of paper work.
- Assistance to control manpower resources.
- The management and administration of major enquiries, such as the Yorkshire Ripper and the Red Brigade.
- Improvements in career development, personal assessment and placement, etc.
- Aids to improve the quality and consistency of police management.
- Improvement in communications both within and between forces to combat difficulties with travelling criminals and a mobile population.
- Improvements in the comparisons problems of searching for fingerprints, and other clues.
- Finally, that much suspected possibility of s database of personal Information.

There were a few changes in the type of questions asked in the latter survey. In 1982 there were fewer questions asked about finance, which is surprising considering the squeeze that central government has placed upon local authorities and thereby indirectly upon police forces.

There were a number of questions about the public confidence in the capahllity of computers. It is obvious that the spectre of the 1 million electricity bill to an elderly widow living alone is still with us.

There were a number of questions concerning potential changes in the pattern of crime brought about by technological advances, particularly electronic money. There was a general feeling that police forces were unprepared for any such changes.

Dr John Hulbert is the force computer officer in charge of the planning and implementation of computer systems within the Devon and Cornwall Constabulary. He is a police superintendent with 20 years' police service.

How the survey was carried out

THE METHOD for administering the Delphic Poll is relatively simple. A questionnaire is produced which contains a list of possible developments. Beside each of these statements are a number of boxes indicating the year in which the respondent thinks that the statement may come true. In this questionnaire the years ranged from 1977 to 2000. There were also boxes for 'After 2000', and 'Never'.

The respondents were asked to go through the questions quickly and tick the year in which they considered these events would occur. In addition, on this questionnaire people were invited to append items which they would like to have had included in the questionnaire.

The main method of analysis is first to cream off the earliest and latest 10% in order to remove extremist groups. Then the median, that is the year which received the most votes, for each of the questions is plotted on a graph. The graphs for the two surveys which were conducted can be seen in the diagram. The black figure in the latest 1982 survey and the white shape is for the results obtained in 1977.

The graph for each question is in the shape of a little house with the highest point indicating the year at the mid point of our sample (the median year). The front of the house indicates the position of the first 10% and the back of the house the position of the last 10%. The height of all the boxes is the same and does not indicate any statistical effect. This method of analysis is crude but quite effective, given the subjective nature of the data.

Generally if the houses are squashed up it tends to indicate that people are in agreement about certain matters. It does not mean that they are right – It merely means that they seem to have a common view of that particular question.

The persons surveyed were chief inspectors and superintendents in the police force. This group was investigated because it was felt that they were likely to make up the bulk of major decision makers in the next decade or so. It was therefore of great interest to find out how prepared they were for potentially important changes in technology which might affect their work and private lives.

The results of the 1977 survey were written up in a number of articles. About 100 people were asked to assist with that survey of which 79 responded.

I approached the same group in 1982 with the objective of carrying out a repeat of the 1977 survey using exactly the same format. Of the 79 or two of the original group could not be contacted, and one of these had died. Of the those left, 61 responded to the survey, which is once again quite a good response. The degree of enthusiasm shown by many of the respondents was indicated by the number of questions that they were prepared to answer and also letters that they sent with returned questionnaires.

SOFTWARE MONTH

City well stocked with pinstripe packages

THE City and its financial institutioos have long been a prime target for the computer industry. The sheer volume of the work to be processed and the apeed with which it is required, coupled with an almost traditional readioess to embrace new technology and new busineaa coocepts, have all combined to pin-point the international baoks, share aod commodity trading institutions, and large insursnee and re-insurance organisationa aa important customers for computer hardware and software manufacturers. It is hardly surprising, then, that the City itaelf should turo rouod aod become a leading light in the supply of City software.

IN 1972, in a joint venture involving the London merchant bank Arbuthnot Latham, the Arbat systems house was born. Now, 10 years later, with a worldwide professional staff of over 200, and offices in London, New York, Bahrain, Singapore and Hong Kong, Arbat has announced its new geoeration of integrated systems designed to take the international banking eommunity through the 1980s.

Arbat is one of Digital Equipment's chosen few, and the new Series 700 International Banking Systems is bsed arouod the company's Vax range of super-minis and the VMS operating systems. Earlier versions of Arbat banking software had used Arbat's own operating system, Aims.

But in a significant policy change and a major conversion

exercise, all new Series 700 software plus all existing software has been written or rewritten to run under VMS and take advantage of the growing Vax hardware range.

DECoet, for example, has been fully incorporated to enable the smaller Vax machines to provide powerful local sccess to eveo higher performance remote hosts. And the hardware range already available means that banks can start with a small system costing about £35,000, which ruos on an 11/730 and handles foreign exchange.

They can meet growing demand with a powerful and fully integrated software-compatible system based oo an 11/782, handling foreign exchange, Swift, commercial fosns, communications etc, and costing in excess of £1 millioo.

Integratioo and total service are the keywords of the Series 700. Christopher Manderson, Arbat's sales and marketing director, comsented: "With the Series 700 we set out to provide a system to handle almost every system known and expected computer systems requirement for an international bank. We have also gone well beyond the supply of computer hardware and software."

The extra features include the use of Arbat hardware oo Arbat premises with Arbat's staff – an approach that is slresdy highly successful in New York – and the provision of a new "disaster site" insurance service in certain areas.

The Series 700 software package itself is composed of 17 separate but integrated modules. These include foreign exchange and money markets which provide the operational sress of international banks with access to data through specially designed terminal equipment; commercial loans (providing real time drawdown facilities, floor and ceiling rates and repayment scheduling); electronic funds control and transfer systems (to assiat in the rapid transfer of funds and data around the world); and a flexible connection to the worldwide Swift network.

DEC itself is heavily and directly involved in City software. Early this year, for example, the compsny announced a contract with Barclays Bank that could eventually lead to the installation of a PDP/11 with comms and special packaging by DEC's special systems group in each of the bank's 2,200 branches.

Hill Samuel & Co is a merchant bank that has slready committed itself to DEC hardware, with 11/70s in London and 11/44s in Dublin, Jersey, New York and South Africa. The smaller 11/04s are also used in the retail branch banking operations in London, Bristol, Birmingham, Manchester and Glasgow.

"The mainframe system we had been using," commented Archie Reid, head of the bank's management services in Londoo, "had become cumbersome, inflexible, complex and expensive to maintain.

"We realised that distributed processing offered us the proper tools to design systems specifically for individual business needs by automating at the source transaction level rather than at the accounts level. It was also foreseen that this would provide increased productivity and improved control and management information."

Experience has sbown that productivity in, for example, the foreign exchange settlements department, has increased by between 300% and 500%.

Bankers Trust, with its European computing centre in London, is the eighth largest bank in the US. It also carries out distributed processing with DEC equipment. By the end of 1981 it had over 40 DEC systems, mainly 11/70s and 11/780s, operational around the world.

The London computing centre comprises two separate clusters of three 11/70s and a third cluster of an 11/45 and an 11/35 (soon to be upgraded to an 11/70) that provided one of the first foreign exchange systems of its kind in Londoo.

One of the two 11/70 clusters is used for UK processing, one system for remote data entry, one for communications, and the third for back-up aod future development. The second cluster provides online computing support to most of the bank's other branches throughout Europe.

By the time the system is complete, this cluster will be supporting 38 remote termioals; six in Msdrid, four in Jersey, 10 in Milan and 18 in Paris.

The drift away from large central msinframes is not limited to Hill Samuel and the Bankers Trust. Filetah Support Services has City users si Schroeder Life, Anthony Gibba (a pension fund database management system written under RPL), the Financial Times and the Economist.

Richie McGladdery, managing director of Filetah, commented: "The computing needs of the City money markets are changing rapidly. As other financial centres in the US and Europe become more aggressive and competitive, the City financial managers need instant fingertip control over their computer systems.

"The large batch processing machines are fast disappearing and being replaced by online computers with networking facilities. The latest hardware, such as that manufactured by Digital, is readily available, and new software tools, such as RPL and RQL, make the money managers' task of installing and operating the latest technology that much easier.

"This, allied to their extensive experience in the financial markets, is necessary if City managers are to win and maintain a competitive edge over their rivals in other countries."

Strange as it may seem, DEC does not have a complete monopoly in the minicomputer range. Currently being implemented by Perkin-Elmer for a multi-company Lloyds Insurance Broker, Market is a comprehensive online insurance broking system. It is fully integrated with embedded software links between the text processing sltp and cover note preparation, and the data processing of risks and claims, and between the latter and the accounts system.

At the same time, it is modular to allow further sub-systems to be implemented without inhibiting the final phased integration.

Market is a menu-driven system with screen entry forms specific to each rype of insurance – identifying, for example, direct open market, client covers, brokers covers and bordereaux, binders and delegated binders, facultative, XL and proportional reinsurance.

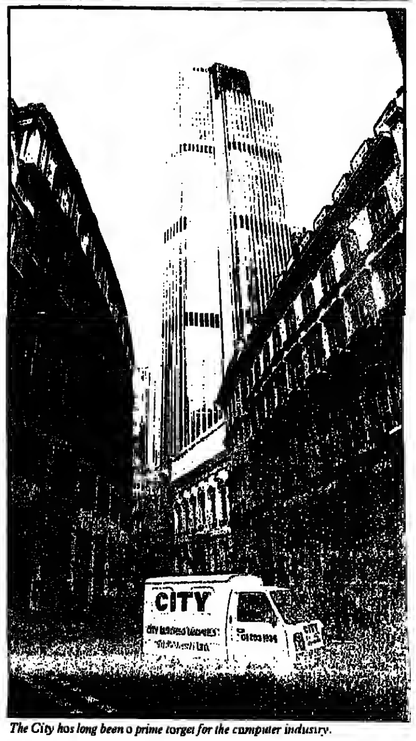
Linked to the risks and claims processing systems is a sub-system that records and monitors all progress on these functions, and provides several years' online historic data for all risk and claim transactions.

The Perkin-Elmer Relational Query Language (RQL) applied to this data provides a virtually unlimited choice of statistical and analytical reports, both specific and by exception.

The accounts sub-system observes the principle of self-balancing postings, and is structured for multiple company and multiple currency accounting. Procedures are provided for simple reconciliation of hureau and non-hureau underwriter statements, and those for Lloyds are designed to accept magnetic tape input from LPSO.

George Pearson, designer of Market, claims: "Any comprehensive Lloyds Broker System must be very heavy io I/O, and consequently requires the power and data transmission rates of a 32-bit processor. It is not insignificant that Perkin-Elmer launched the world's first 32-bit mini some eight years ago."

Nixdorf Computer is the European market-leader in the banking terminal market, with an installed base of more than 5,000 systems. Recently, the company has taken an aggressive attitude towards the UK's City market, with the introduction of the 8864 hardware series, the Nixdorf Integrated Banking System On-Line (NIBSOL), and the estsblishment of a new finance division to offer specialist services to the UK finance market.



The City has long been a prime torget for the computer industry.

This division has been split into three branches – Finance Branch, North, Finance Branch South and Midland Bank Branch. There are, of courae, no prizes for guessing Nixdorf's primary customers so fari

The Midland Bank recently placed ao order for the Nixdorf 8864 distributed banking system valued at more than £8 million, to be installed in 450 selected branches throughout the country.

Each branch will have a branch controller with up to one Mbyte of main memory, 20 Mbytes of Winchester and 0.6 Mbytes of floppy disc backing memory. Up to six workstations will be connected via the branch controller to Burroughs mainframes situated at Bootle and Brent, and the distributed stations will handle local account status enquiriea and customer traoaactions.

Andy Coleman, chief project manager in the branch systems department of Midland Bank, said the bank selected Nixdorf for a number of ressons: "The company satisfied our evalution criteria, and the 8864 financial terminal system is a quality product, well engineered and consisting of a complete range of banking terminals. The order was placed earlier this year, and we are now in the implementation atage, well ahead of schedule.

"We installed the first system in a bank branch io June of this year and now have 62 systems and more than 170 workstations operational. Installations are proceeding at the rate of eight per cent per week."

Other Nixdorf customers for the 8864 include the West Bromwich Building Society, where the system will initially provide enquiry facilities to the Society's mainframe and will later include passbook updating and word processing locally within each branch, and the International Bank of Japan.

Finally it is worth mentioning two software packages supplied by Geest Computer Services Ltd – a soft commodity trading system developed for London commodity traders Volkart, and a comprehensive property management system. Both systems run on TI minis.

The property system, designed to aid the management of a property portfolio, comes in four main parts: property management, rent demands, insurance premium calculations and recording and financial accounting.

The principal application for Volkart's commodity trading is the futures market. It is initially being set up for trading in cocoa and coffee, although the parameter driven design will facilitate its use across a broad band of soft and hard commodities.

Nixdorf's 8864 banking terminal system at work in the Privatbanken in Copenhagen.

SOFTWARE MONTH

Financial institutions cash in on the micro success story

THE great hardware success story of the last five years has been the meteoric rise of the eight-bit microcomputer – soon to be followed by a similar occurrence with 16-bit micros. Within the same period, micro software has been dominated by two disciplines: word processing and financial modelling. Both have their relevance to the financial institutions of the City.

One of the better-known word processing conceroa ia Wordplex, a Canadian company with such e UK bias that its software development centre is located not in North America but in the UK's Software (Thames) Valley.

An early consequence of this location is the development of a Prestel interface designed and produced et Windsor for the Wordplex 80-3. This provides the office with access to all the financial and other data available from Prestel via a standard piece of office equipment – the word processor.

But by using a word processor, information can be transferred to floppy disc and stored for further viewing (thereby reducing phone calls), or edited and printed at will, and as often, as required.

Word processing, of course, has its own validity within the financial market. Girobank, for example, this year ordered five 80-3s, worth a total of £42,000. Two machines are for the Bootle headquarters, two for the Liverpool offices (including one in the financial director's office), and the last one for the City's Milk Street office. Using the system's data communications facility, all five will be integrated into the National Giro Network.

Insurance is another target for the word processor. CE Heath & Co, one of the nation's leading and largest insurance brokers, uses a combination of IBM mainframe (for data processing and records management), and Wordplex word processors for document generation.

The hardware configuration is based on two Wordplex sbared logic systems located at the South-end DP centre, and a number of standalone 80-3s at the London headquarters, with a multiplexing modem link between the two sites.

The applications are traditional word processing, ranging from a library of standard letters used by the claims department to the production, maintenance and presentation of "experience figures". One of the more recent applications involves the generation of policy documents directly from the data used to produce the Lloyd's slip.

The slip, a document that describes the risk for potential underwriters contains virtually the same information as that used on the actual policy document. A little WP editing saves considerable retyping.

Digital Equipment has made almost as many inroads into the City insitutions with its word processors, notably the WD7g, and more recently the DECmate, as with its minicomputers. Citibank, for example, has more than 90 systems in its London offices. Apart from the list processing and, in the case of the DECmate, the mathematics capabilities, one of the main attractions of these systems is the communications capabilities.

About 15% of the word processors at Citibank are connected to an internal electronic mail system that can deliver messages to over 200 mailboxes throughout Europe.

Furthermore, about 20% of these word processors can interface into Citiswitch, the company's own internal global communication network comprising four nodes – one in London, and others in New York, Bahrain and Hong Kong.

According to Peter Vickery, resident vice-president in charge of office automation at Citibank: "It is our policy to provide WP fscilities to every secretary in the company. We have already found a considerable increase in productivity in all departments with the installation of word processing facilities."

Behind word processing, the most prolific software on the general purpose business micro market is the financial modeller. So powerful and so versatile are these systems that their usefulness stretches from the high street newsagent with SimplICalc on a small Pet, to the multi-national City-based corporation with a network of 16-bit micros each operating the powerful Micromodeller package.

Arthur Forrest, a senior financial and planning specialist with ICFC Consultants, the management consultancy subsidiary of Finance for Industry, commented: "Computerised modelliog has revolutionised the financial planning process. While the future will always be difficult to predict, with its many unexpected threats and opportunities, the microcomputer plus modelling package is at the centre of significant developments in the planning methods of large and small companies alike.

"With well-designed forecasting models to help them, managers are analysing their options more thoroughly and understanding more clearly some of the broader implications of the decisions they make."

SimpliCalc and Micromodeller are good examples of micro financial planning systems. They demonstrate the two basic approaches – dynamic on-screen spreadsbeet calculations (the visible calculator approach of VisiCalc, SuperCalc and many other lookalikes), and the more traditionally processed logic file of Micromodeller and Target. They also demonstrate the wide range in price, whicb varies between about £40 and £400.

SimpliCalc was developed by Mark Turner, group accountant for the Cronite Group, because he was unhappy with the small capacity of VisiCalc on a 32K Pet. He also wanted a similar feature for his own cassette-based Pet, and hence developed SimpliCslc mainly in Basic as s 4K program able to run on Pets of 8K or more.

This system proved so successful that it may well have been the primary cause behind Comshare's recent launch of another £40 system, PlannerCalc.

It is easy to understand the economics of a system developed privately by one individual in his own time, and it is not surprising that such a system can be sold cheaply. PlannerCalc, however, is altogether more powerful, and the economics are consequently more confusing.

It may be that Conishare, a company more usually associated with larger systems, is using it as s loss-leader in an attempt to increase its user base – an attempt often made by the larger companies. But since this has been adamantly denied by Comshare executives, we may have to look elsewhere for the answer.

It is certainly hard to believe that the low price will generate sufficient turnover to recoup the revenue that its rivals obtain from their £150-£250 price bracket.

Perhaps the answer is in the history of the package itself. Much, If not all of its development was down to an American company AMSI, Advanced Management Strategies, of Atlanta, Georgia. Comshare recently bought AMSI. In so doing, it may well have acquired a finished or almost finished product at the same time.

The development cost for the system could easily be written off as part of the cost of the company itself – in other words PlannerCalc could have come to us with AMSI. In this situation, anything at all similar, the price to sell at well below the going market level is again easy to understand.

As the micro revolution gathers

■ Turn to page 22

Per ond Hol Hovlond, whose company, Hovland Business Systems, produces standard packages for the banking industry.

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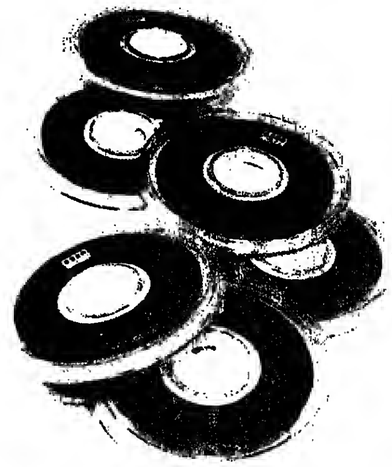

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SOFTWARE MONTH

Software vendors playing games market set to take lead

EVERYONE'S lusting after micro software firms these days. They are growing rapidly, and it's all very exciting. However, in the excitement the traditional independent vendors – such as MSA and Cincom – sometimes get overlooked. Next year, will most package revenues derive from micro software, or will today's established firms still be in the lead?

The first point to make is that there is widespread confusion about what is happening. People familiar with the traditional mainframe and mini software world (see Figure 1) often have little idea of what is going on in the micro world, and micro people are similarly unsure of what is happening upmarket.

SOFTSELL

Susan Ready, research associate at ICP, and compiler of the firm's well-regarded list of top computer services firms, typifies the uncertainty. When interviewed, she said "I've heard of Activision and Visicorp, but I don't have any idea of their revenues . . . I've never heard of Imagic".

When asked why was the biggest independent package vendor, including micro vendors, she said she couldn't imagine anyone being larger than MSA.

This is interesting when you consider that Ready is an industry expert, that micro vendor Activision, selling home recreational software, will probably well exceed MSA's 1982 revenues; that both Activision and Imagic (also big in games software) will well exceed any independent mainframe vendor's revenues in 1983; and that in 1982, micro business software vendor Visicorp (see Figure 2) will probably exceed Pansophic, McCormack & Dodge and Software International.

Games software is run either on a dedicated games machine such as the Atari Video Computer System or on a general purpose micro such as the Apple II or IBM PC. Activision and Imagic are the market leaders among independent vendors.

Activision was formed in 1979. Revenues for 1980 and 1981 were approximately $4 million and $51 million respectively. 1982 revenues are likely to be well in excess of £110 million.

Imagic was formed last year. Its growth has been unsurpassed in the software industry. The first products were shipped on March, and 1982 revenues will be over £50 million. Revenues of well in excess of $100 million seem certain for next year.

A glance at Figure 1 clearly shows that the larger mainframe firms are growing steadily. MSA, McCormack & Dodge, and Software International are selling general accounting software – general ledger, accounts payable, accounts receivable, payroll/personnel, etc.

The other firms are selling systems and utility software – application generators, DBMS, sort/merge and disc management packages, etc.

Industry analysis house Input confirms the picture. The firm assesses recent growth in the systems and utility marketplace at about 45% annually, and the applications market at about 54%. In 1981, Input reckons that the independent systems and utility market was worth about $900 million, and applications about $1.8 billion.

Input's figures are probably the most reliable available, and its research indicates that in 1982, micro revenues will amount to about 14% of the total market for independent business packages.

Good revenues appear to be coming from a number of sources. General accounting packages, DBMS, application generators ("fourth generation" development tools), and software for specialised markets (eg, insurance, manufacturing, banking) are fueling much of the growth, as illustrated by comments from the vendors themselves.

According to John Imlay, president of MSA: "The 3081 deliveries are good for accounting package vendors . . . we are getting a lot of business from people who decide to buy replacement software for in-house developed applications at the same time as they replace their hardware. At the other end, the 4300 area is exploding dramatically . . ."

Werner Frank, executive vice-president at Informatics sees a lot of activity in vertical markets: "We are putting a lot of effort into legal, chartered accounting, and insurance packages".

Marty Goetz, senior vice-president at ADR also sees a good future for development software: "I can't see IBM being able to build integrated software because of its size. It's got development centres spread all over the world, it's an impossible task to co-ordinate them". Last word to Tom Nies, president of Cincom: "Our application generator has been selling very well . . . we installed over 500 in the last 18 months, worth about $20 million".

On the other hand, certain established areas are not doing so well. MSA's Imlay sees the mini marketplace as unprofitable, because it is numerically small, and – unlike the mainframe market – not prepared to accept the high price tag.

ADR's Goetz and Informatics' Frank agreed that the days of good TP monitor revenues are passed; CICS is making life too hard for anyone except for IBM. Goetz also sees basic utility packages, such as sort/merge, having limited scope because of market saturation.

So the outlook for independent vendors over the next few years looks like this: The largest software vendors will be names such as Activision and Imagic selling home recreational software. However, this industry will have little significant impact on the business sector. The traditional vendors (see Figure 1) will retain their importance, although several micro vendors such as Visicorp, MicroPro and MicroSoft are likely to join the ranks of the largest during 1983.

David Ferris

Ferris is a consultant in the UK and US providing marketing and planning advice to computer vendors, particularly in the area of software.

REVENUES	1980	1981	1982 (estimated)
MSA	54	70	90
Cullinane	25	42	70
Informatics	38	55	68
Applied Data Research	34	47	61
Cincom	36	44	55
Computer Assoc.	28	40	54
UCC	27	37	51
Pansophic	28	34	41
McCormack & Dodge	16	26	38
Software Int.	18	27	35

Figure 1. Top independent mainframe software vendors. All figures in $m, calendar years. MSA figures exclude micro vendors.

REVENUES	1980	1981	1982 (estimated
Visicorp	$3m	$20m	$45m
MicroSoft	$8m	$16m	$30m
Digital Research	$2m	$8m	$22m
MicroPro	$2m	$8m	$20m

Figure 2. Top independent micro software vendors (business). All figures calendar years.

City benefits from the micro boom

■ From page 20

pace, we can expect to find more and more micro software applications appearing. Following the general purpose packages of word processing and financial modelling, specific industry packages are now being produced.

Hal Hovland is an ex-Citibank employee (one-time vice-president within the Treasury Group and best remembered as the architect of the networked micro-based foreign exchange systems) who has now established his own software house, Hovland Business Systems.

His company produces standard packages for different functions within the various sectors of the banking industry. All of them run in real time on the IBM PC, and Apples II and III, with networked versions on the Zynar Cluster/One network. Functions already covered include foreign exchange position keeping, money market and cash-flow analysis.

Another of the new packages is the Stockbroker suite produced by Eurotec Consultants, who commented: "In most firms, despite the computerisation of some aspects of the business, account managers still tend to keep manual records of client portfolios. This is where Stockbroker comes in – it enables account managers to do more effectively on behalf of existing clients, and provides the necessary to extend an improved service towards new customers".

The general trend in City software is clear – there is a migration from the larger centralised mainframe system to a new distributed approach with minicomputers linked by sophisticated communications. The next logical step for the processing power to be distributed outwards still further from the local minicomputer departments to individual microcomputers on managers' desks.

The existence of companies like Hovland and Eurotec indicates that this process has already started. However, one cannot help wondering how long this process will continue. The software requirements of City software are industry specific that it is doubtful if the market is large enough to support an independent microcomputer boom.

Perhaps the future really does lie with the new generation of big company micros, with IBM, ICL and DEC personal computers linked to some company mainframes.

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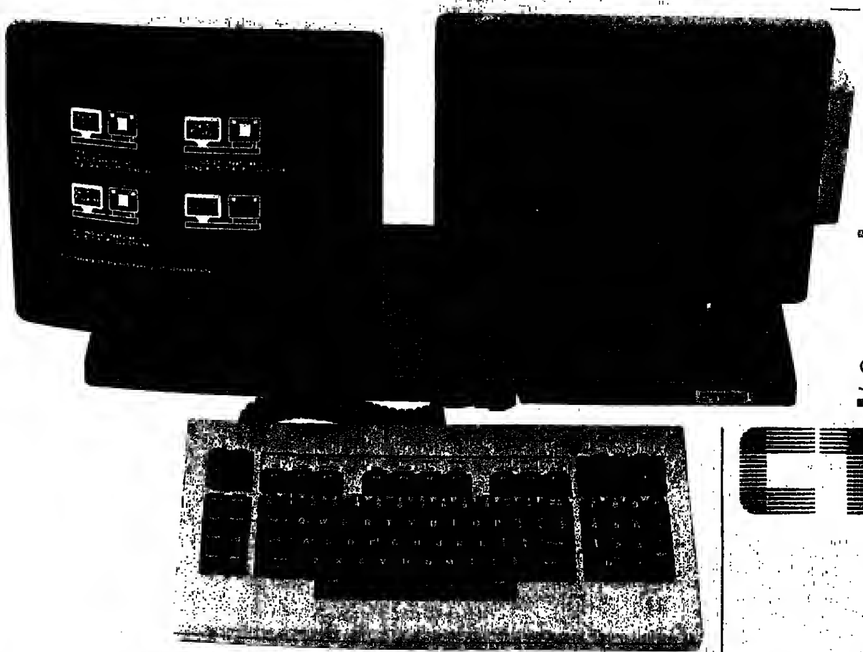

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Solution to storage problem

THE growth in the use of electronic office equipment such as microcomputers and wood processors presents many organisations with the problem of storing a mix of media formats from conventional tapes and discs to diskettes and, often, microfilm. The problem is compounded by the fact that these sensitive media store high densities of information so that minor damage can result in a major loss of data.

A new solution to the problem is offered by Datscare Business Systems which has introduced a range of fire safes with a variety of interchangeable internal fittings, designed to store any combination of currently available material in one unit.

The safes range in size from single door pedestal size to large double door units for major computer installations. Because the fittings are modular, they can be easily re-arranged or replaced to suit changes in storage requirements.

All the safes are fully tested for fire resistance and all can provide two-hour protection for magnetic and film media.

Prices for the new range start at £700 to include fittings and installation.

Datscare Business Systems (CW), 1 Chapel Court, London Bridge, London SE1. Tel: 01-403 4671.

165 Mbyte drive from Kennedy

A NEW 14-inch Winchester disc drive, the Model 53160, from Kennedy, has 165 Mbyte unformatted storage – up to 37 per cent more cheaply than competitive drives, it is claimed.

The composite heads incorporate calcium-titanate slider material round thin ferrite core which reduces magnetic fringing and allows track densities of 680 tracks per inch, track-to-track spacing of 0.00147 inches and data density of 6300 bits per inch.

The new Kennedy Model 53160 fully emulates CDC 9730-160 and 9764 drives and is fully-compatible with SMD-type controllers in both hardware and software. Its five data surfaces each have 1646 tracks per surface and the average positioning time is 30 milliseconds.

The fact that the Model 53160 has 85 per cent of its parts in common with the Kennedy Model 5380 reduces spare-parts stocking requirements and improves maintenance. The average time for a repair is less than 60 minutes, with an average 10,000 hours between failures, says Kennedy.

The Kennedy Model 53160 Winchester disc drive is seven inches high, 19 inches wide and 24.75 inches deep and weighs 75 lbs.

Kennedy International (CW), McGraw Hill House, Shoppenhangers Road, Maidenhead, Berks SL6 2QL. Tel: (0628) 73939.

Relying on electronic timing device

EFFICIENT management of time – the time employees are paid for – is at the heart of a new electronic personnel data recording system from Reliance Systems. The Redacomp 80 is a microprocessor network with specially designed clock-on units linked to a main console.

Functions which the Redacomp 80 is claimed to improve include payroll preparation, attendance reporting, workforce manning levels and deployment decisions and personnel record keeping. And this applies to both office and works employees, flexible or fixed working, shift and part time work – all in the one system.

Employees record their hours at the entrance as usual but using either conventional clock card procedures or a personal plastic identity card. The former is purely a cosmetic as far as the system is concerned, to retain a familiar procedure for employees reluctant to change too soon.

On either method – and one system may have clock-on terminals of both types – the employee has a display of his or her full time-to-date information.

That information is calculated according to pre-programmed instructions. It has no practical limit on the number of different working patterns which can be set – and no limit on which individuals belong to which pattern. Day work, fixed shift, part-time, flexible rostering and so on can all be pre-programmed as can rolling shift arrangements – a common time method but seldom catered for on automatic systems.

Overtime, too, is accounted separately in one of three different categories per person depending on whether it is, say, early start, evening or weekend.

As well as being shown to the employee as a check, the data is transmitted to the central processor where it is used to produce accurate payroll input information of time worked in standard and overtime categories. The processor itself has a printout, floppy disc output or may be interfaced direct to the payroll computer via standard RS232/V24 ports.

The Redacomp 80 microprocessor network with specially designed clock-on units linked to a main console.

At this processor, too, instant information is obtainable on attendance/absence (including for what reason the absence occurs), lateness and other infringements all grouped into departments or cost centres. Provided on demand, these lists show the day's or shift's manning level long before any conventional reporting procedure from the works could have identified problem areas.

The system, therefore, gives visible works and office management information on the employee position whenever it is needed – almost as an automatic by-product.

Reliance Systems (CW), Turnells Mill Lane, Wellingborough, Northants NN8 2RB. Tel: (0933 22) 5000.

The HP2700 Model 65 Presentation Graphics workstation.

Users can choose from 4,096 colours

A SERIES of high-performance colour graphics terminals from Hewlett-Packard performs complex functions which offload graphics calculations from a host computer, displays multiple views by using zoom and pan capabilities, and offers users a choice of 4,096 colours.

The HP2700 series of terminals features two models for business and two models for technical applications. Included are the Model 65 Presentation Graphics workstations; Model 60 Decision Support workstation; Model 55 Technical Design terminal; and Model 50, the expandable base unit.

Two application software packages, HP Autoplot/2700 and HP Paintbrush/2700, enhance the terminals' standalone power.

HP Autoplot features a menu-drive interface to design a wide range of business charts and flexible graphics text. HP Paintbrush offers electronic sketching from an optional graphics tablet and the *local editing of pictures.*

By storing the vector list which defines the graphics image in the terminal, the HP2700 allows the user to pick, move, scale or rotate an object using local graphics manipulation. The host CPU is free for other uses. This distribution of graphics and intelligence significantly increases system performance, reduces data communications and eases graphics program development.

Once the data is in the terminal, multiple views can be displayed through up to 255 "windows" on the screen. For example a hole printed circuit design can appear in one window and a detail of the circuit in another. Using local zoom and pan capabilities, the user can focus in on any portion of the diagram without waiting for the CPU to recalculate and transmit vectors.

The terminal's 32K×32K addressable resolution provides the capability for over one billion addressable points within the vector workspace.

The HP2700 colour terminals can display 16 of their 4,096 different colours on the screen at one time.

Hewlett-Packard, (CW), Nine Mile Ride, Easthampstead, Wokingham, Berkshire RG11 3LL. Phone: (03446) 3100.

Book-size terminal for under £350

SUBSTANTIAL savings on systems costs are claimed for a book-sized portable terminal costing under £350 which cuts out the need for a separate keyboard or VDU screen.

Called TransTerm, it has been launched at the OBM market by Technical Designs of Biggleswade, and is aimed at applications around the factory floor, office or retail operation where simple data entry and retrieval is needed with *responses displayed.*

Typical applications are stock movements and industrial control where heating, ventilating and light switching are linked through a computer. Instructions can be made through the TransTerm to raise temperature, for example. The instruction can be checked before entry and when it is carried out a response can be displayed.

Measuring two inches by seven by 12, the TransTerm can be used flat on a desk or mounted vertically and comes in a rugged casing.

A 64 character alphanumeric LCD display is worked through a typewriter format keyboard. The TransTerm communicates in full duplex with a V-24/RS-232 serial interface. An RS-422 or 20 mA current loop option is available.

Communication rates from 110 up to 9600 bits per second are selectable with the data asynchronous with seven data bits and odd parity or eight data bits and no parity.

A set of 96 characters can be displayed. A mode switch can select typewriter emulation, block send, multidrop polled or line monitor mode.

In addition to dial-up data entry and retrieval, Technical Designs sees the TransTerm acting as a portable console terminal and microprocessor support device.

Technical Designs (CW), Albone Way, Biggleswade, Beds SG18 8BN. Tel: (0767) 312470.

The TransTerm portable data entry terminal.

Dacoll graphics update

DACOLL is to introduce an enhanced version of its M249 Graphics Terminal, launched nine months ago. The new version will contain separate alphanumeric two-page display memory and graphics display control circuits, which makes simultaneous display of drawings and alphanumeric data possible.

Printing of both text and graphics is possible. By using separate circuits and controls, each M249 terminal can interrogate the mainframe while display or keying in of additional data continues.

Separate brilliance controls for text and graphics means that either can be faded for ease of operation.

The Dacoll Group (CW), Dacoll House, Gardners Lane, Bathgate, West Lothian. Tel: (0506) 56565.

Low-cost daisywheel printer

RAPID Terminals can supply direct from stock a new low-cost daisywheel printer. Known as the Diablo Model 620, it is a read only printer designed for use with business and personal computer systems, where the quality of output is more important than the speed at which it is produced.

Typical applications include word processors, and general purpose computer systems running applications software that produces management reports or external correspondence where presentation is important.

The Model 620 employs a 96 character plastic daisy printwheel that prints fully formed characters at an average print speed of 20 cps. Maximum form width is 15.2 inches and up to five-part form sets can be printed without adjustment.

It can be interfaced to any computer or terminal with an RS232C serial I/O port, at data transmission rates of 110, 300 or 1200 baud. In addition, data can be transmitted over telephone lines or through direct cable links using the modem interface which is compatible with Bell 103A, 113A and 112A modems or their equivalents.

The printwheels, which do not require positioning or aligning, can be replaced without removing the snap-in multistrike carbon ribbon. They are available in 10, 12 and 15 pitch with proportionally spaced type characters in a choice of many type founts. Each printwheel is encoded with language and pitch information that the Model 620 automatically reads to determine correct carriage motion and hammer energy. The host processor can interrogate the printer to determine the type of printwheel installed and prompt the operator to change printwheels if required.

Measuring 24.5 by 17.4 by 9.2 inches and weighing less than 50lbs, the Model 620 meets the UL, CSA and VDE 0804, 0730 and 0875 safety requirements as well as VDE 0871 and FCC class B electromagnetic interference requirements.

Rapid Terminals (CW), Rapid House, Denmark Street, High Wycombe, Bucks. Telephone (0494) 26271.

Five graphics models from Memorex

AN addition to its 3270 compatible terminal system, the 2079 colour display station is announced by Memorex. It is functionally interchangeable with the IBM 3278 and attaches directly to IBM 3274/3276 controllers and to the 4331 display printer adapter, as well as to Memorex controllers to allow easy addition to existing IBM networks.

Five standard models will be available giving a choice of four or seven colours, 24 or 32 lines of graphics. The graphics models will be available early next year. The other models will be available in the UK from December.

The 2079 offers many "user friendly" features. Its recessed non-glare screen, for example, has a Sunflex filter to reduce operator eye fatigue. The monitor tilts to various operating environments. To reduce screen-burn the screen image dims automatically if there is no activity for 20 minutes.

The range of colours displayed on a CRT monitor is produced by combining or "converging" three colours. On the 2079, these colours are pre-converged in the factory, and it is no longer necessary for operators to perform this time-consuming convergence routine from the keyboard.

Memorex UK (CW), McKenzie House, Church Street, Staines, Middlesex. Tel: Staines 51466.

Word processors add 15 Mbytes storage

ARCHIVES has extended the data storage range of its word processing systems.

The addition of the Archive III range with its stepped range of three Winchester hard disc systems offers the prospect of on-line storage capacities for text and data in excess of 15 Mbytes. At the same time the range of command facilities built into the standard keyboard now offers improved assimilation and utilisation of the WordStar system of word processing, says Archives.

For the more experienced user looking for a system with a wider range of facilities, Archives has added Final, a microcomputer-based financial planning system, and dBase II, a relational database system, to its preferred software lists.

The already well established floppy diskette-based Archive I and II and the new Winchester-based Archive III provide the first time user with a system which is both user friendly and has the facility for logical expansion as this experience and requirements grow, says the company.

Archive is a true S-100 bus system, and all models come complete with the industry standard CP/M operating system to provide support for most of the more popular and widely used development and application software programs.

Archives' preferred software list includes some 30 proven application and general purpose development systems.

The detachable Archive keyboard with its dedicated WordStar keyset is specifically designed to provide the new and inexperienced user with early ease and facility with the WordStar System command instructions. The latter are often regarded as the main obstacle to the effective use of WordStar by many operators.

The new Archives keyset offers labelled single touch commands for the twenty principal functions. These same commands normally require up to three keystrokes using a conventional keyboard.

Archives systems can be supplied with several levels of integrated financial modelling and information processing systems. These cover all levels of complexity from simple name and address lists to more complex and integrated information systems.

All the associated software has been selected as WordStar compatible supporting the integrated word and text processing facilities increasingly required as the competence and experience of the user grows.

The associated software can be supplied pre-configured and ready for immediate use. It has been carefully selected and structured to offer a number of levels of entry for the new user. The software is *designed to provide an established* development library for more advanced users.

Archives UK (CW), PO Box 26, Croft-on-Tees, Darlington, Co Durham. Tel: 0325 721368.

More storage for Archives' word processors.

Stability calculator for ships

A MICROCOMPUTER-BASED, hardware/software system designed to help commercial marine operators perform ship stability and stress calculations, thereby ensuring the safety of vessels at sea or in port while maximising cargo capacity, has been introduced by Marine Management Systems Inc (MMS).

The MMS Cargomax is described as a loading stability and stress calculator that uses a multi-purpose computer, the Hewlett-Packard HP-85 microcomputer.

The software includes a main operating program plus a vessel loading program specially tailored to reflect the physical characteristics of each ship.

Programs are available for tankers, bulk carriers, container, ro-ro, and general cargo ships, and include classification society approval as specified by the ship owner.

Tape cassettes are used to store executed loading calculations for later retrieval.

Marine Measurements Inc (CW), Scotch Plains, NJ, US.

Soft contact head cuts out damage to disc

A HALF-SIZE disc drive featuring a soft contact head has been introduced by Mitsubishi.

The Model M2896 half-sized flexible disc drive measures 2.25in high × 8.55in wide × 12.40in deep and features a dual gimbal head assembly for improved performance and media wear.

The M2896 requires half the space of conventional double-sided, double-density eight-inch disc drives, says the company, yet maintains the same 1.6-Mbyte storage capacity as the full-sized M2894 and is fully compatible and interchangeable with industry standards like Shugart's SA850R (-63 interface). The M2896 is also IBM information and media compatible. Electronic functions and logic controls are LSI-microprocessor based for signal and data integrity.

Unique to the flexible disc industry, two all-ferrite MnZn heads in a special designed gimbal mounted assembly, enable soft, stable contact with media regardless of disc surface fluctuations, thus eliminating, says Mitsubishi, the possibility of media damage. The head features program seeking accuracy, and Mitsubishi's Softouch high-speed, soft head landing.

Front panel controls include a door lock for prevention of accidental opening and an LED indicator programmable to user signal requirements.

Mitsubishi Electronics America Inc (CW), Computec Peripherals Division, 2200 W. Artesia Blvd, Compton, CA 99220. Tel: (213) 979-6055.

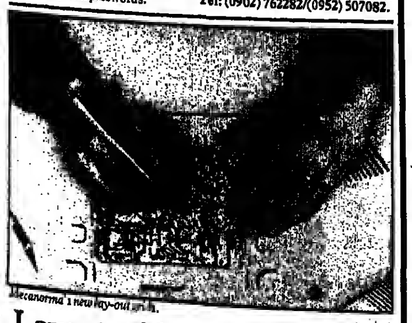
Scrambler foils data burglars

ILLICIT entry to computer systems can be guarded against with the Confuter C100, a datalink scrambler from Warren Logic.

The Confuter is a hardware device which behaves like an electronic lock – each Confuter has its own combination. It prevents unauthorised users from logging into a system even if they know the system passwords.

One unit hooks into the CPU and the other to the terminal on the front-end computer. They measure 7in × 5in × 3in and are controlled by the mains on/off switch.

Warren Logic (CW), St Luke's House, St Luke's Road, Doseley, Telford, Shropshire TF4 3DD. Tel: (0902) 762282/(0952) 507082.



Mecanorma's new key-out arms.

Layout grids aid CAD user

MECANORMA has announced two CAD-compatible additions to its range of graphics products:

Layout grids (seen above) facilitate the study of printed circuits prior to the input of information into a digitising system; and correction sheets allow the visual correction of errors on photo plotted film, thus enabling the user to generate a new layout prior to amending the database.

Mecanorma Ltd (CW), 10 School Road, London NW10 6TD. Tel: 01 961 6464.

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For information about exhibiting at COMPEC WALES contact, The Exhibition Manager, COMPEC WALES IPC Exhibitions, Surrey House, 1 Throwley Way, Sutton, Surrey SM1 4QQ. Tel 01-643 8040.

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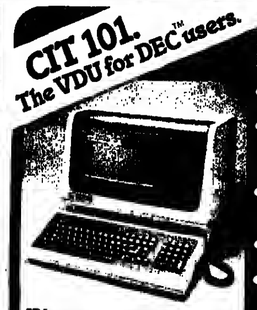

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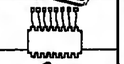

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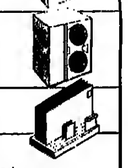

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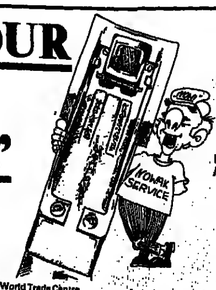

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This is a genuine management position which will appeal to experienced professionals wishing to enhance their management skills in a secure and expanding company.

Due to increased involvement in European activities the Computer Services Manager requires an assistant who will share the day-to-day management duties with him and who will deputise in his absence.

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A new, purpose built, two storey computer centre is under construction at the current location. Opening February 1983, this will house the company's IBM System/34 and the 4331 Group 2 machine, which will be replaced by a model 4341 machine at the end of 1983. The operating environment is DOS/VSE with ICCF/VSAM/COBOL. The installation will progress towards the use of databaae and DL/1.

Candidates

Candidates will be mature in outlook. Probably in the age range 25-35 years. Relevant background in a commercial installation with supervisory skills will be required. Ideally candidates will have a degree level education. Mature candidates with appropriate experience are welcome to apply. Candidates will be required to visit the company's European computer centre from time-to-time for short durations.

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Honda (UK) Limited is well known as an importer and supplier of prestige motor cars and motor cycles. It is also a market leader of a range of power products.

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Rapid expansion in the software development activity at our Livingston facility has created the following vacancies. These are senior posts and we are looking for people with at least 4 years relevant experience. As well as being technical leaders in their field candidates (male or female) for these posts should possess the ability to motivate and lead others.

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If you have extensive experience in the development of compilers and an interest in the future direction of programming languages, you can help shape the future of programming language development for our financial products. Familiarity with various languages and their areas of application is required.

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An individual is required with considerable experience in the development of communications software. The ideal candidate will be familiar with SNA, X.25 and the ISO open system model and will be expected to take a lead in defining our future networking strategy.

Operating Systems

We also require people with experience in developing basic operating system software, especially those with a background in microprocessor based real-time systems. This is a rare opportunity to play a leading role in defining the architecture of our future products.

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For further details contact Frances Hill, Personnel Officer, Burroughs, Simpson Parkway, Kirkton Campus, Livingston. Telephone Livingston (0506 414111).

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Applications are invited for the post of Director of the Computer Laboratory, vacant following the resignation of Professor J. L. Alty. The status and title of Professor in the University will be associated with the post. The salary will be not less than £17,304 per annum.

Applications (12 copies), together with the names of three referees, should be received not later than November 26th, 1982, by the Registrar, The University, P.O. Box 147, Liverpool L69 3BX, from whom further particulars may be obtained. Quote Ref. RV/612/CW. [1480]

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Applicants should preferably be able to demonstrate proficiency in RPL/7/ILEAB and/or knowledge of RSTS/E, although training would be given to an otherwise suitable candidate.

The appointment will be permanent with a salary in the range £6,261 to £8,619 per annum or £7,155 to £9,018 per annum (under review). The Conditions of Service include 5 weeks annual leave, plus 14 days' public holidays and University closures.

Applications forms, returnable as soon as possible, are obtainable from the Personnel Office, Bonsai House, University of Sussex, Falmer, Brighton, East Sussex BN1 9RH (Brighton 606755, ext. 334, Mrs. Bispham) quoting reference 610/CW.

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Committed to a career in systems programming, candidates must not only want and be able to meet Client deadlines with the minimum of supervision, but also exhibit a positive yet flexible attitude to their work.

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For further information please contact ADRIAN HARDY, on 01 935 0671 (24 hour answering service) or Ashford, Middlesex (07842) 46026 (evenings and weekends), or alternatively furnish him with a comprehensive Curriculum Vitae at the London address quoting reference AH103.

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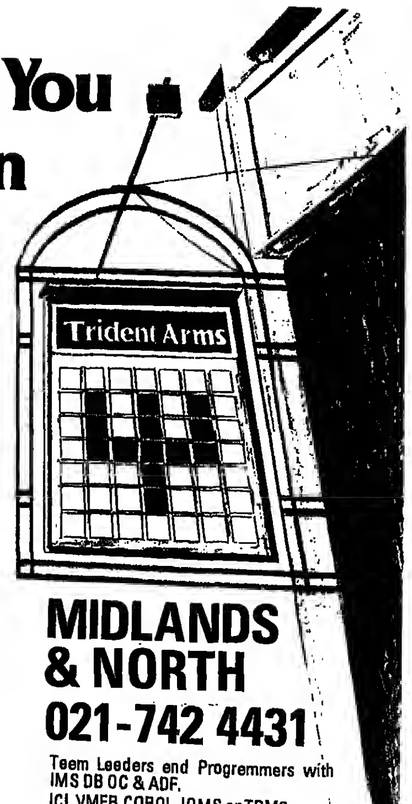

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Because of the strict salary level restrictions we are enforcing, and the subsequent advanced production arrangements necessary, all space reservations for the "Top Jobs" section must be received in London by 4 p.m. Friday before publication date.

To reserve space please telephone Shobhen Gejjer (Direct Clients) or Julie Hannaford-Mcinally (Consultancies) on (01) 661 3080 or (01) 661 8757.

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Our client is involved in the development of defence communicetions syetems. They currently wish to employ an engineer with a beckground in radio communicetions. Experience in defence stretegic communicetions, including messege handling, would be e greet edventege. TM44/3

COMMUNICATIONS
HERTFORDSHIRE
Our client is at the forefront of microprocessorbesed communicetions systems. To expend their existing teem they heve e requirement for engineers with a minimum of three yeers' reel time syetem development experience, using high level languages and IBM, PDP 11, VAX or Micros. TM44/4

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A London-besed syetems house is currently seeking scientific programmers to work on site in the West Country for a minimum of two years. Cendidetes should heve experience of Fortran on VAX mechines and en interest in grephics-type applicetions.
In edditien, progremmers with PDP-11, Fortren, Basic and Pascal, ere required for engineering systems. DLM44/5

SYSTEMS SOFTWARE
OXFORDSHIRE
Our client has en established software fectory where existing developments in systems softwere require additional personnel from Senior Programmers to Project Menegers.
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BANKING COMMUNICATIONS
CITY
An internetional organisation specialising in banking networks is interested in recruiting additional support progremmers. Candidates should have experience of banking applications, e technical background, end experience in programming in BASIC.
Based on PDP 11, successful candidates will be involved pre- end post-sales support on customer sites. DLM44/7

TYPESETTING/GRAPHICS
BERKSHIRE
A very successful company (recently gone public) specialising in Typesetting end Grephics Terminals, wish to expend their programming development unit. Candidates should have a degree plus two years' software/scientific programming experience on minis or micros in any modern language. DLM44/8

COMMAND & CONTROL
LONDON
One of the largest internetionel Software houses with their headquarters in London have a requirement for Software Designers with a minimum of 1 year's experience in Real Time Systems Design, candidates should have a degree plus experience in one or more of the following:
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–Mascot –VAX
–PDP 11 –INTEL 8088 DLM44/9

* * * * *

HARDWARE DESIGN ENGINEERS
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Candidates must heve a degree plus three years' experience in one of the following: 8086 hardware design, digital logic design, digital communication equipment end interface design. DLM44/10

HARDWARE ENGINEERS
ESSEX
Our client is involved in e wide range of hardware development using state-of-the-art microprocessors. Candidates should have experience in one or more of the following: data handling hardware, IF/VHF circuits, compler microwave circuits, Rader transmitter design, and analogue end digital control systems. DLM44/11

HARDWARE ENGINEERS
BERKSHIRE
A number of openings exist for Senior and Principal Engineers to carry out design and development in the following areas: analogue and digital sub systems, speech coding, digital filtering, speech recognition, end telephone exchanges.
Candidates must have a degree, plus at least two years' practical experience. DLM44/12

* * * * *

TECHNICAL WRITERS
SCANDINAVIA
Our client, a growing computer manufacturer, is seeking candidates for technical author/co-ordinator positions.
Candidates should have a technical background including technical writing and must be able to communicate in English both written and verbal. The work involves micro processors, data communications, and local network. DLM44/13

SOFTWARE ENGINEERS
SWITZERLAND
A major telecomms company seek additional programmers to work on state-of-the-art switching systems.
Candidates should heve e degree, be in their twenties and have experience in some of the following: real-time multi micro processor operating systems, comms. devices, HDLC, high level languages, e.g. Chill, Peacel, SPC switching systems, call handling experience, CCITT recommendations, System 12/40 and System X. DLM44/14

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PROGRAMMERS
IBM COBOL OR ASSEMBLER
CROYDON — To £11,500

We have currently been retained by this well known company with offices in Croydon to recruit several programmers. They are currently expanding and need to supplement their large development group. They retain IBM 3031 hardware running under MVS using Cobol, Assembler, CICS and DL/1. Applicants require a minimum of eighteen months' IBM COBOL or Assembler preferably under OS/MVS but good DOS candidates would be considered. Experience of CICS or DL/1 would be an advantage but TRAINING offered. More senior candidates with a minimum of 2 years will be involved in setting up database for Real Time Systems. These positions offer superb opportunity for programmers looking to make a career move to be involved in a progressive forward looking company. This organisation places great emphasis on TRAINING and career development. The company offers excellent working conditions with regular reviews and generous fringe benefits. Ref. S.6749

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THE EUROPEAN INVESTMENT BANK

is the European Community's bank for long-term finance.

The EIB finances projects in the ten Member Countries of the EEC and in over seventy other countries in the Mediterranean, Africa, the Caribbean and the Pacific. The Bank's staff are recruited from Member Countries and work in multinational teams.

The Bank is currently seeking, for its Finance and Treasury Department's data processing division,

TWO DATA PROCESSING SPECIALISTS: ONE INFORMATION CENTRE MANAGER AND AN ASSISTANT

to be responsible for:

- ☐ data management (inventory, codification, documentation of data and files);
- ☐ promotion and support of personal computing tools such as:
  - APL;
  - enquiry languages (APLDI, ISQL);
  - ADRS, business graphics;
  - document composition facility;
  - STAIRS;
- ☐ creation of files for accessing via APLDI;
- ☐ APL applications development;
- ☐ maintenance of existing applications (either in APL, or in CDBDL, CICS, DL1) related to information centre operations.

ENVIRONMENT: IBM 4341/2 8 Mb working under VM/CMS/DDS/VSE.

Experience required: ☐ CMS, APL, COBOL, CICS, DL1, APLDI, ADRS, DCF, STAIRS; ☐ 5 to 10 years professional data processing experience (at project leader level, preferably with data management and personal computing experience); ☐ a good knowledge of French and English is essential.

A HEAD OF COMPUTER ROOM OPERATIONS

responsible for the operations team on an IBM 4341/2 8 Mb system working under VM-CMS/DOS-VSE/SNA.

Duties would include: ☐ planning and control of production work; ☐ monitoring security procedures; ☐ interface with systems programming team; ☐ user interface; ☐ monitoring a 100-terminal network.

Experience required: VM, CMS (exec.procedures), DOS/VSE (JCL). Programming experience an asset. Knowledge of transmission equipment and SNA would be an advantage. 3 to 5 years experience in supervising an operations team and managing a computer centre.

A good knowledge of French and English is essential.

The monthly starting salary for a married person will, depending on qualifications, be within the bracket of: ☐ 105.000 to 120.000 Belgian francs for the Information Centre Manager; ☐ 92.000 to 105.000 Belgian francs for the Assistant and ☐ 83.000 to 97.000 Belgian francs for the Head of Computer Room Operations, net of tax and social security payments, in addition to which there are allowances for any dependent children. The Bank also offers a comprehensive welfare scheme, including its own pension and medical insurance, education allowances, etc.

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CRAY RESEARCH (UK) LTD

t16030

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SYSTEMS & OPERATIONS MANAGER

To provide a stable and efficient service to users covering both operations and technical support functions.

Applicants must have a good track record of managing operations involving large terminal networks together with experience of hardware selection, purchase and installation.

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If you're interested in a career in this expanding area of computer aided design, please send a detailed c.v. to Mr. J. McKillop, Computer Aided Design Centre, Madingley Road, Cambridge, CB3 0HB.

Computer Aided Design Centre

t1194

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ITT Microcomputers.

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Lecturer Grade 1 In Computing Studies

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The closing date is fourteen days after the appearance of this advertisement.

All applicants are asked to note that it is the County Council's view that it is desirable for their employees to be members of an appropriate Trade Union.

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Microcomputers and Operational Research

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Graduate in Operational Research, Mathematics or Computer Science required to develop advanced procedures of stock buying for retailers based upon microcomputers. Close liaison with a local company forms an essential part of this SERC funded project. In appropriate cases preference for M.Phil./Ph.D. will be encouraged. Salary: £7688 per annum inclusive.

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JP29

★ SYSTEMS ANALYSTS ★
Wiltshire

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t1192

A few of our exhibits . . .

PROJECT LEADER (Watford) — £11,500

Progressive computer equipment manufacturer urgently needs a competent all-rounder, as No 2 to the DPM, to undertake all aspects of their major systems development programme in the Financial and Field Service application areas. Current systems are running on ICL System 10, IBM Series 1 and micros, with ICL System 26 planned for the near future. Essential requirements are two years programming experience and four years analysis/design, ideally including online projects in a related field.

SENIOR PROGRAMMER/ANALYST (West Middlesex) — to £10,000

An exciting career possibility for a programmer/analyst who can demonstrate technical competence and professional commitment. This large retail organisation needs you to take projects from the user feasibility stage through design and programming to implementation. A super environment and well conceived development plans will give you the job satisfaction and security which is now so important. Essential requirements are IBM DOS/VS1 COBOL and a willingness to roll up your sleeves when necessary!

TECHNICAL PROGRAMMER & ANALYSTS (Berkshire) — to £11,000

Hugely successful UK group needs candidates with at least three years post graduate experience of software engineering, ideally intermixed with CORAL, FORTRAN or ASSEMBLER languages. PDP 11 under RSX11M is used for Comms. work but micros, minis and mainframes are also available for engineers' use. The work predominantly involves military projects, usually in a real-time environment; successful applicants can expect involvement in a large number of interesting and varied projects.

SYSTEMS ANALYST (MICROS) (Nottingham) — c£11,000

Consolidata your micro experience with this successful and highly respected new software house which supplies a range of general commercial and financial applications. You must enjoy talking to clients and potential customers and be confident of taking projects successfully from specification through to implementation and initial customer support. Previous involvement with PASCAL and/or LANS will be especially useful.

ANALYST/PROGRAMMERS (Berks) — c£10,000

Super online development opportunities with a major food processing company committed to a complete DP rationalisation program. COBOL skills gained in a commercial or financial environment using mini hardware and ideally combined with analysis/design experience will help you to key positions in a cohesive and friendly team.

TECHNICAL PROGRAMMERS (Bracknell area) — to £9,500

This small but fast expanding systems and software group operating in the defence, scientific and industrial product areas have several vacancies for scientific programmers wishing to escape the "back-room boffin" syndrome. Customer contact will be an integral part of most projects, your initial task being a real-time simulations system using PDP 11/34s front-ending VAX 11/780 processors. You will need at least two years relevant experience including RSX 11M and MACRO 11.

SALES SUPPORT CONSULTANT (West of London) — c£10,000 + Car

Interesting role supporting clients of a progressive micro and mino-based systems house. Duties will include troubleshooting, ongoing systems advice/enhancement and user training. Systems and programming experience would be advantageous, but more important will be general business experience combined with an appreciation of the computer market place, a sound knowledge of basic accounting procedures and confident communicative skills. Some European travel may be involved, so a foreign language would be useful.

PRINCIPAL SOFTWARE ENGINEER (Berkshire) — £12,000

A rare chance to join the industry leaders in the design of advanced computer graphics and imaging systems. This is a key role requiring sound technical and commercial judgement with proven team leading abilities. Suitable candidates will have had a minimum of five years scientific/engineering programming experience, preferably related to graphics or imaging, on minicomputers. Hardware in use includes PDP/LSI and INTEL 8086, so experience of RT11, RSX11M, FORTRAN, MACRO 11, PLM and ASM86 would be relevant.

MINI/MACRO SOFTWARE SALES (Home Counties) — £25,000 + Car

This is an outstanding opportunity to join one of the foremost names in bespoke off-the-shelf software packages, a company which is really going places. If you've had at least three years' success in selling proven application software to software houses, commerce and industry, you will enjoy the total support and success our client can offer you. Excellent package includes high level basic, commission (+ guarantee), company car and top fringe benefits.

PRODUCT SUPPORT PROGRAMMER (West Middlesex) — c£8,000

Unusual opportunity with a major hardware manufacturer which would suit an ambitious graduate, with at least one year's experience of programming in a high level language, who wishes to get "closer to the machine" and become involved in Operating Systems, Compilers and Communications. Initial training and in-house work will lead to increasing user contact in the field.

COBOL PROGRAMMERS (High Wycombe area) — c£8,500

If you live in Bucks/Berks, have a desire to cut down the boring commuting and can demonstrate sound COBOL programming ability we can almost certainly offer you early interviews with local clients. Roles and applications very, but all can provide interesting development work with clearly defined career paths.

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ICL/VMEB or K/IDMS — Commercial · Menu. – H Counties · Midlands · Men	to £11K
IBM SYSTEM 34/38 RPG — London · H Counties	to £13K
DEC/HP/WANG/DG — Basic · Cobol – Berks · Surrey	to £12K

Analyst/Programmers

BURROUGHS/COBOL — Commercial	to £14K Surrey
HONEYWELL 64/66 — Commercial	to £10K Staffs.
IBM/UNIVAC/ASSEMBLER — Online · Database – Surrey	to £12K

Hardware/Support

CAD/CAM/GRAPHICS — Technical Support – H Counties	to £15K
TECHNICAL SUPPORT — Pre and Post Sales	to £12K Nationwide

Systems Analysts

IBM/ICL — Stock Control/Commodity Control	to £12K London
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ICL — Commercial	£10K Cheshire

Software Engineers

FERRANTI/ARGUS — Berks · Surrey	to £12K
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MILITARY SYSTEMS/RADAR — Coral · Mascot – Surrey · Essex · S West	to £11K
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SENIOR PROGRAMMER

Sussex to 11K

Our client, part of a large organisation within the financial and insurance marketplace, is seeking to recruit a Senior Programmer with at least 3-4 years experience of Technical Systems Design and COBOL Programming.

The salary, which shares equality with the organisation's Systems Analysts grades reflects the importance and seniority of this programming role where technical counselling and leadership of other programmers is vital.

Expertise in Technical Systems Design, techniques of COBOL programming, job control and a thorough understanding of Dump reading are essential elements of the position. Preference will be given to candidates with either experience of CICS or knowledge of Database concepts although training will be given where necessary.

The current configuration includes an IBM 4341-2 with 8 megabytes of real storage running under VM, OS/VS1 and CMS. It is planned to enhance the installation further with the introduction of larger IBM computers running under OS/MVS.

This is a unique opportunity for career advancement within a growing and secure financial organisation. Our client is able to offer generous fringe benefits including non-contributory pension and life cover, subsidised restaurant, flexible working system and relocation assistance.

To find out more about this exciting career opportunity call Bill Parker or Geoffrey Henley.

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Help support our ICL software in Johannesburg ....and make a sound investment for the future

Our Client, a highly respected company, with predominant interests in the mining of precious metals, is seeking to recruit suitably experienced ICL Software Personnel to work within their Johannesburg Head Office.

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R21600+benefits

With good experience within ICL 2900 VME environments coupled with at least a 2 year exposure to COBOL and possibly FORTRAN. Duties will encompass support of operating system, and superstructure software through hands on involvement and the supervision of a small VME team. Consequently skills in project planning and team leadership are highly desirable, as are telecomms and databsse experience.

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R21600+benefits

To provide an efficient support interface between applications development and technical personnel. A knowledge of COBOL and preferably FORTRAN is required to enhance a sound background in TP and Database technology (preferably IDMS and RAPPORT).

These positions hold an exciting challenge for career minded individuals and an excellent package of salary and benefits (to include bonus, non-contributory pension and medical aid) will be available. Full assistance with relocation to South Africa will be offered including 3 months initial accommodation in a furnished flat, and every effort made to ensure a happy landing at Jan Smuts Airport.

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This will be a rewarding position for a mature individual with at least two years' IBM operations management experience. You will be responsible for the operations area, data prep, data and ops. control. A technical knowledge of OS/VS1 VM and possibly DOS would be required.
Ref: KS816/CW

Vax Operator C. London £6K + Bonus
Our client wishes to recruit a VAX operator with nine months + exposure to VMS. They run a small operations department working on a three shift basis to 2 am. New VAX hardware is soon to be installed and there will be plenty of scope for the right applicant.
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In return for your sound OS VS1 operations background, knowledge of DOS and PDP11 our client, a Financial Organisation can offer you excellent opportunities. Benefits include subsidised mortgage, non-contributory pension scheme, SUPA.
Ref: LR810/CW

Minis Operator Herts. C.£6K
Finance company seek operator with minimum one year's mini experience. Two shift system.
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PDP RSX Operators City + Middx. C.£7.5K
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Co Operators
VLI House, St Martin's Lane, London WC2N 01-836-8411

(1484)

PROGS & AN/PROGS HP 3000 to £10,000
Rapidly expanding elite in C. London seeks programmers and analyst/programmers to enhance their existing team. Applicants must have a minimum of 18 months' HP 3000 experience and can expect considerable client contact. Programming language is immaterial as full training in the latest HP systems will be given. Excellent career prospects are assured for the successful candidates.

PROGRAMMER HONEYWELL £10,000 + Mort.
Prestigious company in C. London requires a programmer with a minimum of 18 months' Honeywell Cobol experience. Applicants should be familiar with commercial applications and have a working knowledge of TOS on-line techniques. An excellent salary package is offered together with a preferential mortgage and other large company benefits.

PROGRAMMER BASIC/RSTSE c £8,000
A systems house specialising in OEC systems has a requirement for two BASIC + programmers. Applicants should have around 18 months' BASIC gained in any commercial environment. This is an ideal opportunity for programmers to move on to VAX systems as the client is installing several VAX machines.

SALES SUPPORT c £11,000
International Company based in C. London requires analyst/programmers to work in sales support areas. A solid DP background is essential together with a good academic record. Experience in the financial sector would be useful as would knowledge of INTEL equipment.

PROGRAMMER RPG SYS 38 TRAINING £8,500+
North Surrey based company has identified a requirement for an RPG programmer. They have been a SYS 38 user for a year and are prepared to give the necessary training to existing RPG programmers. The minimum requirement is 1½ years' RPG preferably from a SYS 34 environment. As well as SYS 38 RPG III training the client encourages early exposure to systems.

DATABASE PROGRAMMER UNIVAC c £11,000
Well known company in London requires a database programmer to supplement their established team. A thorough knowledge of DMS 1100 and COBOL is required as the position carries the status of senior programmer. Although there are expansion plans a degree of maintenance is expected. Applicants should have a professional outlook and attitude.

PROGRAMMER/ANALYST ICL COBOL £9,000
Large ICL user based in North Surrey is seeking to recruit several programmer/analysts to complement its existing VME development teams. Applicants should have a minimum of 18 months' VME/B COBOL and should be familiar with either IOMB database or on-line programming techniques. Usual large company benefits apply.

ANALYST/PROGRAMMER £10,000
Engineering company located in C. London requires an analyst/programmer with a strong commercial COBOL background. The position is based in the management services team of five people. The minimum requirement is two years' COBOL with a good understanding of accounting systems. There is a lot of user liaison and therefore applicants should have good communication skills.

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International bank in the City require an experienced programmer for their team. The prime requirement for this position is a minimum of one year's programming on CTL hardware together with two years' experience of financial systems and packages. Usual banking benefits apply for this position.

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Oct. 1982: Due to further expansion, a PROJECT MANAGER and two ANALYST/PROGRAMMERS required.

PROJECT MANAGER to £15K + CAR

If you are currently a Senior Analyst on an IBM System 38 and have at least six years experience within the DP industry (some of which has been spent programming on IBM small systems) this is an ideal opportunity to progress your career into a more senior position.

You will head a number of small teams involved in a wide range of important development projects and thus your general business systems experience and communicative skills will be stretched.

ANALYST/PROGRAMMER to £13K

If you have in-depth IBM System 38 experience gained through one or more years in a demanding System 38 environment, and strong RPG III (and C/L) programming experience, this challenging position is for you.

Development must be your main interest and you must be able to take any user requirement from feasibility through to implementation.

AIG Computer Services has grown from being the information processing department of Alltransport International Group to become a highly successful systems house, with the financial backing of a company whose annual turnover is £45million.

Alltransport started in business as a freight forwarding agent and with growth and success, the group has created further divisions specialising in fine art shipping and computer delivery. They are a forward-thinking company, one of the first in England to install a System 38, and thus the opportunities for career advancement for their computer personnel are vast.

The 24 offices throughout the UK are mostly associated with airports and major seaports, but the Computer Services division is positioned centrally in a modern, multi-storey office in Staines, Middlesex.

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For more details of these exciting opportunities and immediate interview, please contact Nick Clements on 01-734 7394, or on 01-546 7813, in the evenings or at weekends.

(1612)

Systems Analyst c.£13,000

Senior Programmers c.£11,000

Programmers c.£9,000

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- New IBM Installation
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Our client is the U.K. Member of a successful international insurance group. Following a recent strategy survey, they are making a significant investment in hardware and people to develop state-of-the-art systems to see them through the next decade. Hardware is IBM, 4300 DOS/VSE CICS/DL1 together with S/23 and Displaywriter. They now need the following additional people:

Systems Analyst: to lead the technical development of new systems. Candidates should have a minimum of five years' DP experience including at least three years' analysis experience. They should have led and implemented at least one major interactive project and have experience of the insurance and commercial business world. A knowledge of database would be an asset. Exceptionally good communication skills are needed in order to work effectively with and win the confidence of senior user management as well as creativity and flair to exploit technology to the advantage of the business. Preferred age range is over 25.

Senior Programmers: to lead small programming teams working on the design and development of various insurance systems. Candidates should have a minimum of 4 years' programming experience including 2 years leading successful projects. Experience of structured program design is required in a CICS/DL1/COBOL environment. A knowledge of VSAM and DOS/VSE would be an advantage. In personal terms, candidates should be capable of independent working and strong enough to ensure that technical considerations are not overruled in the finished systems.

COBOL Programmers: with not less than three years' experience, including working in a DOS/VSE CICS/DL1 environment.

These positions, carrying an exceptionally good BENEFITS PACKAGE, provide an opportunity of getting in 'on the ground floor'.

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As a result of our Clients high reputation, the Company has recently won the UK maintenance contract for Autotrol CAD systems, which are based on the Univac V77 family of processors, and equipped with a Tektronix tube with either Calcomp or Versatec plotters.

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Proven experience of hardware support to component level on the Sperry Univac V77 range of machines is essential. Further experience of Graphics and/or CAD systems would be an obvious advantage as would previous contact with Pertec magnetic tape devices, CDC disks and plotters or Tektronix 4014's.

Applicants should have a good qualification in either Electrical and/or Electronic engineering, preferably a Degree, followed by a number of years practical experience in the field.

In addition to an attractive starting salary, other benefits include full use of a Volkswagen Passat Estate car, free BUPA and a contributory pension scheme which includes free life assurance. Relocation assistance may be available, dependent upon circumstances.

If you enjoy working in a professional environment, contact **Ian Payne** now on **021-236 3781** (24 hour answering service) or alternatively send him a brief CV at the Birmingham office.

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You should be of graduate level, with two to four years' real-time development experience, and your specific language is of secondary importance.

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ANALYST/PROGRAMMER

Near Sevenoaks

Butterworths is one of the largest UK Book publishing houses and specialises in legal, medical, scientific and technical books.

We are looking for a person with good academic qualifications (preferably a degree) with an aptitude to develop programming and analysts skills. Experience in this area would be an advantage. The person appointed will join a small team which provides computing services to all departments of the company.

The systems currently in operation are order processing, subscriptions, sales ledger and management reporting, Bought Ledger, nominal ledger, cost ledger and royalty systems are being developed.

The existing systems run on a large DEC PDP 11/70 and a second machine has been recently acquired to accommodate the new systems. The programming languages used is a sophisticated combination of COBOL and BASIC.

The successful applicant will be expected to contribute to the development of new systems and to provide support for existing systems.

Courses will be provided for the candidate who shows suitable professional skills but who does not have the necessary knowledge of DEC products.

Please write giving full details of qualifications and experience to:-
Linda Stammers, Personnel Officer,
Butterworth & Co. (Publishers) Ltd.,
Borough Green, Sevenoaks, Kent.

Butterworths

1846E

SALES BIT

Quality of Management – 29

Do you know all the right questions?

OVER the past weeks, I have written about the three most important areas of basic sales documentation – client records, call-plans and call-reports. There are many other forms of written information that many salespeople have to handle – sales proposals, competitive activity reports, complaint forms and credit dockets, for instance.

Of all these, the ones I have found most valuable as a sales manager are checklists and questionnaires for collecting information related to a specific selling opportunity.

Many kinds of industrial and commercial selling involve the production of a sales proposal or quotation, which in turn demands the instigation of a detailed survey in order to collect all relevant information so that the best available solution can be offered to the prospective client.

While the information one collects in every such exercise is virtually unique, by far the greater proportion of questions the salesperson needs to ask come up time and again. Yet, despite this repetition, salespeople often approach the survey on a one-off, "play it by ear" basis. This means that the chances of getting all the information needed is a direct function of experience, memory and the investment of a considerable amount of time.

The use of standard checklists within the sales survey is an excellent method of increasing the efficiency of collecting essential information, and for aiding the less experienced salespeople in the context of an unfamiliar application or industry.

Let's take for example the sale of a manual accounting system for a sales ledger application. Most of the questions that need to be asked are obvious to someone who has sold a sales ledger system before.

1. How many sales ledger accounts do you have?
2. How many new accounts have you opened over the past year?
3. How many ledger postings do you expect on a daily and month by month basis over the next year?
4. What is your accounting discipline? (Balance brought forward, balance brought forward by month, open item).
5. How many days average credit is being taken by debtors at the present time?
6. What about integration with invoicing and stock control?

All straightforward questions for the configuration of any sales ledger system. Of course there is also a need to cover non-standard input under the heading of Any other requirements – but 80 to 90% of the questions will be the same, whichever company is being addressed.

So why not have a data collection form for each application or type of product, containing all the standard questions?

The related benefits include greater accuracy, fewer omissions and the whole procedure is made less time consuming. It assists relatively inexperienced personnel, gives formal confirmation of client's needs and brings about greater investigationary discipline.

The areas of possibility are not limited to relatively simple areas such as accounting and business management. The specification of all kinds of equipment, materials and services usually involves considerable repetition. This is not an original idea. I know of many companies which have been using sales survey checklists for years.

If you are in the business of specifying products and don't already use this kind of sales aid, I suggest you start to devise your own as soon as possible.

I can assure you that it won't be long before you are wondering how you ever managed without one. After all, it also makes an excellent document for the prospect to sign just in case there is any subsequent argument about the task that was undertaken.

Alan Williams

COURSES

■ Microcal has launched an interactive CP/M training package called Hands-on CP/M Operating. It is designed for the inexperienced user and is suited to anyone requiring microcomputer experience. It covers topics such as an introduction to computer hardware and information processing concepts. For the part of the course that deals with CP/M, the screen is split into two halves with a CP/M simulation taking place in the top half and a tutorial guidance running in parallel in the lower half. The information that is collected on the students' performance can be analysed by an additional utility program. It is available for use on most CP/M and CP/M-86 machines at a cost of £70+VAT. Details from Jon Shearing on (07635) 68009.

■ A SERIES of microcomputer short courses have been arranged by the Polytechnic of the South Bank. The approach will be to introduce the concepts and packages at a fairly elementary level. Titles include Microcomputer Appreciation. Further information on dates and fees from the Polytechnic's Faculty of Administrative Studies on 01-928 2790.

PUZZLE ANSWER

28755
65153
2532
2532
2532
2532
94920

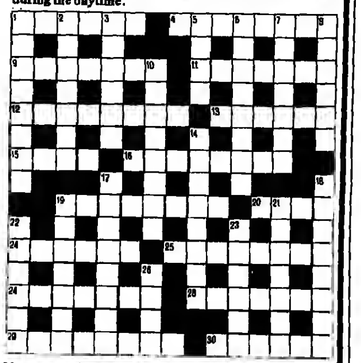
The 1 and 2 are interchangeable.

CROSSWORD

Prize Crossword No 34

Compiled by Alec Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS, by first post Friday, November 12. Please use a ballpoint to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name ..... (Miss, Mrs, Ms, Mr)

Address .....

.....

Telephone .....

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed ..... Date .....

ACROSS

1 Go beyond the defile to the borders of Burgundy (4,2)
4 Is ancient, corroded internally, and set apart (8)
9 It controls flow of liquid in overturned vessels by a gentle knock (4-3)
11 Rest disturbed after high-ball and sea-food (7)
12 Demure, having to wash back very early (8)
13 Make short visit to everyone in course of study (4,2)
15 Bouts of horseplay causing scraps (4)
16 Allowed one back into technical college in courteous manner (8)
19,20 Leave the inflamed swelling to begin to cool (2,3,3,4)
24,25 Open up play-pen and leave team-mates so the lurch? (3,3,4,4)
27 Part of Germany where there's bachelor song around five (7)
28 His, blended with ours, is rather acid in taste (7)
29 Concerned with theologian in outhouse getting torn to pieces (8)
30 A children's ourse's pineapple (6)

DOWN

1 Dad's game permit (8)
2 Attending to furnace all right, though in sharp pain (7)
3,5 Gambler's spirit reveals nobler impulses (6,4)
6 Wasn't truthful about awful child being poised (8)
7 Ooc has to agree completely (7)
8 Courageous sweetheart left out (6)
10 Quiet periods of unemployment for deciding games (4-4)
14 A decade that is captivated by Varsity boat-races (8)
17 Worried the pair of them before start of day (8)
18 Sovereign, surrounded by birds, winces (8)
19 Recover from having reverend with OT, for instance, turning up (3,4)
21 Love getting a kiss on one with an undergraduate of Balliol? (7)
22 Frightful bogies displaying round bodies (6)
23,26 Cost of double journey with true, well-cooked, navy food (6,4)

RULES AND CONDITIONS

1. Each competitor may submit no more than one entry.
2. The competition is open to all readers of Computer Weekly with the exception of the staff of IPC Business Press Ltd, any printers employed by them or the near relatives of any such staff.
3. The solution of each puzzle will normally be published in the issue three weeks' after the puzzle has been published.
4. Winners will receive their prizes during the month following the competition.
5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

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You should have at least six years relevant experience and have taken, or be ready to take, responsibility for design and/or project management. You would also contribute to project estimation and the preparation of tenders.

Experience in one or more of the following areas is particularly relevant –

- real-time control systems
- mathematical modelling
- manufacturing information systems (eg COPICS, MAAPICS)
- data communications
- high reliability and multicomputer systems
- technical microprocessor applications

If you have relevant experience, ability and enthusiasm please write to or telephone Rebecca Davies (quoting ref IG09) at Logica Limited, 64 Newman Street, London W1A 4SE. *telephone* 01-6365454.

[14781]

The SINTROM GROUP is a healthy growing organisation in the exciting world of computer peripherals and microprocessor systems.

GRAPHICS PRODUCT MANAGER

We are looking for a Product Manager to head a team selling computer graphics peripherals and systems for one of the United Kingdom's leading distributors.

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Please write or telephone for an application form, or send your c.v. to Mrs J. R. Feaver as soon as possible.

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SINTROM GROUP

[1928]

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[1261]

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The Technical Services section of the Highways Department now have the above vacancy. This successful applicant will work under the direction of a Team Leader and will be primarily responsible for the development and efficient operation of the computer system for DLO.
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Application forms may be obtained from the County Surveyor, Tipping Street, Stafford ST16 2LP, quoting post No. 2201132 – Computer Section.
Applicants (m/f) are asked to note that it is the County Council's view that it is desirable for their employees to be members of an appropriate trade union.

Closing date: 30th November, 1982.

[1928]

UMIST
RESEARCH ASSISTANTS

Applications are invited for two Research Assistant posts in the Department of Computation. The posts are for two years and are funded jointly by SERC and ICL. The appointees will work on the incorporation of a recon facility into an ICL COBOL compiler. Applicants should have a good honours degree in Computer Science, or some equivalent qualification, or significant relevant experience. Knowledge of COBOL and compiler writing techniques will be a distinct asset.

Salary will be on the scale £5550-£9095 or £5575-£11105 per annum, depending on age, qualifications and experience.
Applications, quoting reference COM/255/BC and including a full c.v. and the names of two referees, should be sent to Mr. J. Francis, Department of Computation, UMIST, PO Box 88, Manchester, M60 1QD. The closing date is 19 November, 1982. [1928]

DP62 PROGRAMMER/ANALYST

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There is an exciting opportunity to join our computer team working on IBM System 34 within an expanding marketing company.
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To do this successfully we feel that you will already be experienced in the IBM DSD area.
Please write with full career details for the Data Processing Manager, CPC (UK) Ltd., 17 Thame Park Road, Thame, Oxon.

Logistix Logistix Recruitment Limited
10 Grenville Place, London SW7 4RW

Telephone 01-373 3063

Real-Time Programmers

Netherlands : Salary to £15K

A leading International Systems House and Turnkey Supplier is seeking to recruit a number of Software Programmers and Systems Engineers for permanent career positions commencing in early 1983. Suitable candidates should hold at least one numerate degree and have two years' software programming or systems engineering experience in an industrial environment. Candidates who have programmed in one or more of the following languages will be of special interest: MACRO 11, PASCAL, 'C', PL-M or CORAL. Hardware experience is less important but those who are currently working in a development role on PDP-11/VAX, Argus, Intel 8086/8 or Motorola 6800/68000 will attract a salary premium. Whilst not mandatory, some fluency in a foreign language (or even willingness to learn) e.g. Dutch, German or French is an advantage. The Company offers external language courses and a generous relocation package to the Netherlands. First interviews will be held at our offices in November. Ref: L/43/A

Snr Systems S/W Engineer

N. Home Counties : :Pkg to £16K

A most interesting and unusual opportunity has arisen within the Development Department of a leading computer manufacturer which is developing a new generation of machines. In order to assist in this development they require a Senior Systems Software Engineer with a minimum of seven years' compiler development experience to join them. Experience with a large number of languages is desirable, as is a knowledge of multi-processing systems. Specific responsibilities will include the definition, implementation and maintenance of Systems Software and, also, the development of a strategy for coping with applications languages in a multiprocessor environment. The ability to co-ordinate the activities of a number of project teams will be sought. Ref: L/43/B

Comms Systems Designers

W. Home Counties : Salary to £15K

A number of Communications Systems Designers are required for the Advanced Systems Division of a Software and Systems Supplier. At least one degree in a computer-related discipline followed by five years' direct involvement with systems software development is necessary. Of particular interest will be candidates who have an in-depth knowledge of communications protocolling techniques – X-25, SDLC/HDLC. A significant area of responsibility will include the provision of consultancy services across a wide number of projects and ensuring that performance parameters and quality assurance criteria are achieved. Good personal communication skills (both oral and written) are very important. You should also be prepared to undertake business trips both nationally and internationally. Ref: L/43/C

Pascal/UNIX

E. Midlands : Salaries to £9K

One of the UK's leading microcomputer consultancies, renowned for its range of products based around the UNIX operating system, is currently seeking a number of Programmers and Analyst/Programmers to be based at its East Midlands development facility. Suitable applicants should preferably hold a numerate degree and have programmed for a minimum of two years in either PASCAL or 'C' on any leading 16 or 32 bit microprocessor. Ideally, you will have some knowledge of the UNIX operating system, but this is not essential since training will be provided. Working as a member of a small project team you will be involved in various applications including Local Area Networks, Office Information Technology and Graphics. Ref: L/43/D

Communications Software

Inner London : Salary to £15K

The Communications division of a leading, international systems and software house has a number of vacancies for staff from Programmer to Project Leader/Consultant level. All applicants for these positions will be required to possess at least two years' message or packet-switching experience. Particular hardware experience is not sought, although preference will be given to candidates with exposure to PDP or VAX-based systems. Of special interest will be those who have also utilised microprocessors to provide shared communications functions on at least one major system. For the more senior positions familiarity with the I.S.O. reference model or any European P.S.S. is a prime requirement. Ref: L/43/E

Compiler Development

London & Home Counties : Salaries to £14K

A major Systems and Software House has recently embarked on a large new project requiring the expertise of a number of Compiler Development Specialists. Suitable candidates will have participated to the development of either a Pascal or Ada compiler, preferably for 16-bit micros. Familiarity with all phases of compiler development is strongly desirable with particular emphasis placed on Code Generation and Optimisation. Whilst specific responsibilities will vary, depending on the ability and experience offered, all successful candidates will be involved from initial proposal stages, through to the creation of a fully self-supporting compiler. Ref: L/43/F

Telecomms Consultants

Central London : Salaries to £16K

A highly regarded supplier of Integrated Data and Telecommunications Systems wishes to recruit several Senior Consultants for its U.K. Headquarters. Ideally, candidates should have previous experience in the evaluation and selection of PABX-based equipment and have actively participated in the investigation and installation of PTT Teletext applications within multinational corporations. All respondents must demonstrate previously successful involvement in both project and budgetary control in particular where the client has requested a total consultancy service from strategic studies through to recommendations, on-site implementation and final acceptance. Good personal presentation skills are of paramount importance since you will be expected not only to present recommendations at board level but also to persuade antipathetic users of the viability of new developments within telecommunications. Ref: L/43/G

Graduate Programmers

London and H. Counties : Salaries to £7,5K

A number of exciting opportunities have arisen in London and the Home Counties for Programmers who have recently graduated. You should hold a first or second class Honours degree in Mathematics, Computer Science or Electronic Engineering. Of particular interest will be applicants who have completed a sandwich course and can offer 12 months' industrial training experience. It is essential for all positions that you offer fluency in PASCAL, 'C', ADA or Assembler. Ideally, your project work should have included compiler writing, artificial intelligence, UNIX or firmware development.

Ref: L/43/H

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[1928]

16 MORE GOOD REASONS FOR PICKING UP A TELEPHONE

1 **Systems Analyst** Surrey c£11,000
We are currently seeking a systems analyst with 1-3 years experience, our clients being a large insurance broking concern. The successful applicant is likely to be in their early-mid-twenties, with an IBM background and knowledge of on-line systems. Insurance/Financial experience would be an added advantage. REF: A0016

2 **Programmer/Analyst** City £10K+
Our client is a well-established banking organisation, with large-scale expansion planned for the near future. Interested candidates should have a solid background in CICS and DLI, with banking experience, although not essential, an added advantage. REF: A0014

3 **Programmer/Analyst** Middlesex £10K+
This opportunity lies with a company who successfully manufacture and market a range of peripherals within the computer industry. The person we seek must have COBOL and RPG, with a working knowledge of CICS also an advantage. REF: A0032

4 **MVS Systems Programmers** H. Counties/C. London to £15K
We are currently looking for a number of MVS Systems Programmers to satisfy the needs of clients both in Central London and the Home Counties. Excellent opportunities exist for suitable applicants. REF: A0033

5 **Programmers** C. London c£10K
A leading oil company are currently looking for a number of programmers as a result of expansion within their D.P. department. 2-3 years' experience of CICS and DLI, with sound COBOL background, would make you suitable for this fast-moving organisation. REF: A0023

6 **Project Leader + Programmers Essex/London borders to £13K + benefits**
Opportunities exist both at Project Leader and Programmer levels within this rapidly expanding insurance company. Programmers should have solid CICS COBOL experience, while the Project Leader will need to be able to combine this with analysis and supervisory skills. Insurance experience would be an advantage, but not essential. REF: A0027

7 **Analyst/Programmers ICL** South London to £10,500
An international construction company requires analyst programmers with approximately 2 years' COBOL for systems and phases system work in designing and implementing an on-line system under VME. Good user contact skills required. The benefits are commensurate with a large company. REF: S4136

8 **Programmers ICL** City to £10K + benefits
Programmers with a minimum of 2 years' COBOL, DME and VME experience to develop monthly account system and to help plan rewrite of alt work under VME. The company offers substantial opportunities for advancement into both analysis and management programming. REF: S4138

9 **Analyst** West End to £10K + benefits
Insurance company requires analyst with a minimum of 1 year ICL 1900 or DME COBOL programming experience using Filetab for maintenance and development work, with training in real-time database systems. The benefits include 10% bonus, mortgage facility and free insurance cover. REF: S4139

10 **Programmers** South London to £10K
A software house requires programmers with a minimum of 3 years' range COBOL George III, ICL 1900 and Jackson Structured experience to help develop a new project costing system. This company offers all kinds of opportunities for the go ahead programmer. REF: S4140

11 **Analyst/Programmers** London E1 to £13K
Dynamic Burroughs analyst/programmers who want to travel with good user contact skills and a minimum of 3 years' COBOL (assembler) experience are required for a multi-national software house. This company offers a relocation package as well as other benefits commensurate with a large company. REF: S4124

12 **Programmer/Analyst** City to £10K+
If you have a good knowledge of AIMS and you want your career to take a giant leap forward then there is a position in this banking house for you. A good technical knowledge plus some analytical expertise will help you to succeed in this prestigious company. REF: N404

13 **Programmers COBOL** West End to £10K + benefits
A large and prestigious manufacturing organisation are running a HONEYWELL L66 using IDS and DM4 and would like to recruit several good COBOL programmers and programmer/analysts for interesting development work. If you would like to develop your skills within an organisation with a reputation for good training and stability then contact Nick Clements. REF: N505

14 **Programmer/Analysts RSTSE BASIC+** City to £10K + benefits
Large banking organisation who operate a progressive and expanding O.P. department seek good BASIC+ programmer/analysts with a good financial background. This position is not for the faint hearted, a desire to progress is a must. REF: N101

15 **Programmer COBOL/MACRO 32** H. Counties/C. London to £11K + benefits
A rare opportunity for a good programmer with any VAX banking/financial experience to come into a department at the ground floor. A large development plan must be backed up by good programming skills that only you may be able to provide. REF: N202

16 **Software Experts DPS6/LEVEL6** H. Counties to £11K + benefits
A large and prestigious manufacturing organisation are looking for DPS6/LEVEL6 SOFTWARE EXPERTS who must know GCOS and TPS inside-out. A large network of users and a progressive applications base would depend on your expertise. REF: N303

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